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1957

BALL

MUM and PLANT GUIDE

Gro. J. Ball
INC.



CHRYSANTHEMUMS

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TO OUR CUSTOMERS:

One of the major trends in our rapidly changing flower business is the shift of growers towards "buying in" from specialists of more and more of their young stock, cuttings, plants, etc. The reason is simple: it leaves the grower free to concentrate his entire efforts on **growing and marketing** the crop. Meanwhile, the specialist propagator does his part of the job ever better because he, too, **concentrates** his efforts. Time and experience is proving this to be good business.

To better enable us to serve you in this expanding field, you'll find your '57 BALL MUM

GUIDE is actually a PLANT GUIDE—including a **complete** list of top quality plant material—Mum and Carnation cuttings, Rose plants, Foliage plants, and many other items. The same background work—constantly comparing sources for this material, evaluating new varieties, new cultural methods, etc.—is being extended to these other items. The usual candid style notes on culture and varieties in this new enlarged BALL PLANT GUIDE are based on these greenhouse tests. We hope they will be helpful to you!

Yours for a busy and prosperous '57!



ABOUT OUR BALL MUM PLANNING SERVICE

Modern Mum growing—especially year round production—is a precision operation. Cuttings are planted, lighted, shaded, and flowered according to a carefully worked out plan. Such "programs" as they have come to be called, must be designed to give continuous cut, yet emphasize holidays. Total yearly production must be in tune with demand. Obviously, selection of the best varieties at different flowering periods is of critical importance.

Several years ago, we organized here at West Chicago, our Ball Mum Planning Service—for the specific purpose of relieving growers of the burden of much of this important planning. Our "MPS" staff men are trained and experienced specialists in the job of planning year round Mums. Thru our continuous flowering trial program here on our range, we keep constantly abreast of the question of varieties—which are best for each flowering period, which of the new ones "fit"—and where.

The "MPS" idea has taken hold. The team of an experienced grower knowing local growing problems, soils, labor, marketing etc.—coupled with a Ball "MPS" specialist on the technical side of year round Mum flowering has proven to be an effective one. Ball programs may be found today in all important growing areas.

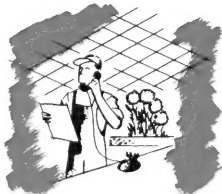
Let's take it by steps

1 Let's assume that you, a grower are interested in at least "taking a look." How would a Mum program fit?

What would be needed in equipment, what kind of average weekly production would a given area provide?

What's the approximate cost and return picture?

You would just write or call Mum Planning Service, Geo. J. Ball, Inc., West Chicago, Illinois—or your local Ball representative.



2 Shortly, a first interview is arranged. The points mentioned above are thoroughly discussed.

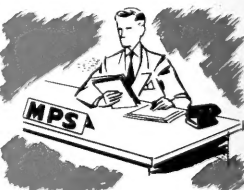
Let's assume that you, the grower, are interested enough to want a closer look at how a program would fit into your situation. The Ball man will carefully note all details needed to prepare a "first draft" of the program. Is it a retail or wholesale range? What special demands for

colors, flower types? Any special problems in temperatures, head room available? Local weather—very hot summers, etc.? Bed dimensions, "ready to plant" dates.

All this is carefully noted, goes back to the home office of our Mum Planning Service.

3 From this, the actual program is prepared by our Ball Mum Planning Service Staff. Included are all dates for planting, lighting, shading of

crops, spacing, varieties recommended, etc. An "index" sheet is furnished, summarizing the year's program, from which the over-all rotation may be seen more easily—and which shows at a glance dates when you will cut into a new crop.



4 This first draft then goes back to you, the grower.

Drawing on your experience with local growing and marketing conditions, there may be a few changes you will want to make. The whole program is again discussed. Let's assume that it is a deal, you decide to go ahead with the program for one year. You simply indicate your acceptance of the program, and on the scheduled dates cuttings will start arriving. A final copy of the program is furnished. There is no charge for this Planning Service to Ball customers.

5 Of equal importance after your year round program is rolling—"MPS" and the Ball organization maintain a close follow-up. Routine "contact calls" are made, you may receive our several grower Service publications (GROWER TALKS, Ball

Mum Planning Service Bulletins, BALL RED BOOK, etc.) with helpful suggestions on cultural aspects of year round flowering. We realize that year round flowering of Mums, like any growing operation, is not completely trouble free. There are problems. We are glad to help if called upon to do so. In many cases, our own experience as wholesale year round Mum growers gives us a practical background for this aspect of our Grower Service.



6

WAYS TO MAKE MONEY WITH MUMS!



These showy 3 inch garden mums for May sales can be grown in 8-10 weeks, no light, no shade. They'll flower again in the fall if planted outdoors. They sell! Grower here, Earl Hall of West Grove Greenhouse, West Grove, Pennsylvania.

1

MUMS FOR SPRING BEDDING SALES

Use of Mums—garden or hardies mostly—as a spring bedding plant has more than doubled the past three years! They are fast becoming a major item on the spring plant list. Main reasons: they are easy to grow, and they are at their best in autumn when most other garden subjects are “over the hill.” Here are the ways they are used:

Garden Mums—flatted or potted for spring sales

No doubt the most important single use made of Garden Mums for spring sales.

They may be handled several different ways: **As potted plants**—cuttings are potted to 2¼ or better to 3 inch pots in early April, pinched soft in 2-3 weeks, are ready for sales as bushy well-developed plants for late May. Same watering, feeding, etc. as annuals. No light or shade. Night temperatures of 50°, or better yet 45° (and cool days), retard the tendency toward premature buds. Lighting the plants 3 hours per night will also help avoid buds.

More and more growers are shifting over to use of newer **growing containers** for spring garden mums. The Jiffy-Pot (see page 128) is ideally suited for this. Some growers last spring used the highly decorative Alumipot (inside back cover) for garden mums. Growth excellent—and such a bright container!

As flatted plants

A substantial part of these spring garden mums are grown in the new small size “by the dozen” type flats—of which the Market-pak and the Alumipak (inside back cover) are good examples. Handled in this way, the grower's cost is considerably less than in individual containers.

Garden Mums in flower in 3's for spring

Here's an unusual, showy, yet easy to grow item for your spring trade!

A single cutting (garden variety) is potted to a three inch pot March 2, pinched March 9, and grown at 60° nights. No shade, no lights—and they'll be nicely **in flower** by early May! They make colorful, highly salable plants—especially in the bright new Aluminum pots. They are a low cost item (some growers offer them for 39c cash and carry). Best of all, after your customer has enjoyed the flowers on them for a couple of weeks, the plant can be cut back, planted out to his garden—and it will flower again in the fall. Some growers attach little tags to them, pointing out their use for fall flowering and giving brief instructions (cut back half way down, plant out, water, feed, pinch till August 1, etc.). Quite a few of these Garden Mums in spring are flowered in larger pot sizes too—4-5 and even some in 6 inch.

Many growers use these garden plants in flower combination boxes.

The schedule described above will flower most varieties in early May (many for Mother's Day). Garden varieties may be potted as early as mid-February and as late as mid-March—no shade, no lights. They flower 8 to 10 weeks after potting.

Where the grower wants to flower spring garden mums for a certain date (Easter, Mother's Day, Decoration Day), they can be brought in on time by use of lights, then black cloth shade. Schedules to flower the late September-early October garden kinds follow:

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	Plant	Light	Shade	Pinch
Easter (April 21)	Feb. 7	Feb. 7-Feb. 13	Mar. 15	Feb. 28
Mother's Day (May 12)	Feb. 28	Feb. 28-Mar. 6	Mar. 15	Mar. 21
Decoration Day (May 30)	Mar. 14	Mar. 14-Mar. 20	Mar. 21	April 4

Varieties

Our suggested list of varieties for this spring flowering of Garden Mums consists of **all those varieties marked “P” (for pots), and which have a normal flowering date of not later than October 10.** The list starts (white varieties) on page 41.

Pot mums used in combination

Mums are coming into quite general use for combination boxes. They add bright colors and lots of them, they are compact growing, they stand transplanting well both into the combination box and later to the customer's garden. Garden varieties, used in this fashion, flower again in the fall for the customer.

Culture: use regular greenhouse pot mum schedules and variety suggestions. See page 83. Grown in Jiffies, they can be planted to the combination pot and all.

Garden mums set out in May for fall sales

Here's a really low cost way to turn some dollars out of that patch of unused land around your place.

Rooted cuttings are simply planted outdoors soon as frost danger is past. They will develop better if they are given a square foot or more per plant. They should be generously fed and watered through the growing season. Pinching must be tended regularly up till July 25—or even August 1 on the mid-October or later kinds. No shade or light.

They'll start showing color in late summer. They can be dug and potted to 6 inch pots, or to a **Bird Perennial Pot**.



YEAR ROUND CUT MUMS

2

Gradually—but surely—over the last four or five years, year round mums have become a major cut flower crop. As late as 1950, continuous production of cut mums under glass was viewed as rather an experiment. Today it is an important crop on literally hundreds of ranges across the entire country. What's more, this trend toward year round flowering is still picking up steam. A considerable number of new continuous flowering programs have been launched during the past year.

Why?

The key factor in this unusual switch of crops is that the growers, in most cases, were convinced that year round mums could earn them more dollars per foot than the crops they had been growing. The fact that virtually no programs have been discontinued confirms the decision of these growers.

Up to the last year or two, most of this production went into the larger wholesale cut flower ranges. Most of it still is there—but there has been an unmistakable trend toward year round cut mum production in the medium to larger sized retail ranges. Year round mums "fit" admirably into the flower needs of these retail growing ranges.

Other Reasons

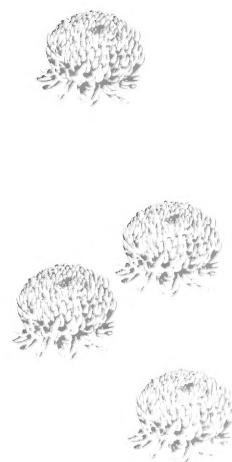
There are other considerations that have encouraged growers to move toward mums. As we see them:

1. The year round mum grower is on the market 52 weeks a year with good quality flowers. All the other major cut flower crops more or less go off the market during the summer months. Mums, although not at peak quality during hot weather, are of quite acceptable size and color, and bring in a steady return all summer. Actually, in our experience, June and July especially are among our best months from point of sales.

2. Control. The year round grower has complete control over the amount and nature of his production each week of the year. Dark winter weather cuts production way down on other crops, warm spring days speed it up. The mum grower can plan for just as many or as few flowers each week of the year as he feels will sell. Furthermore, the mum grower can adjust his proportions of colors and types from week to week. He can produce **all** red for Christmas! He can flower all standards in April, all pomps in June—or any proportions. Growers working on programs prepared by our Ball Mum Planning Service need only to let us know what they want to



Cloth house pomps—an important factor in year round cut mum production. Here's Iceberg as grown in Florida in March. The two Florida growers are (left) Walter Rensink of Kromhout and Rensink Flower Growers, Vero Beach, and (right) Cornelius Colin, Ft. Pierce grower. Florida peaks from January to Mother's Day, the northern cloth house crops from August till October, and the West crops mainly from July till late fall. California is the only important cloth house area that produces standards in quantity outdoors—due, of course, to the dry summers.



Year round Mums on a retail grower's range—Lindley's of Springfield, Ill., DeWitt (left) and Fleetwood (right). DeWitt says, "Our year round mums save us real money in our cut flower buying. The steadily available supply of mums and pomps works in fine with our retail trade. Our customers can count on getting fresh flowers from us."

flower and when—we do the adjusting of schedules, variety selection, etc.

3. Steady work, steady costs, steady returns. As some growers who are growing under regular programs put it, the crop is "easy to live with." There's no big rush of work tearing out and replanting the whole place at one time. There's no great rush of harvesting at once. There's no big expense at any one time. And there's money coming in **every** week.

Your benches are always full—except for the week or two between crops.

4. Less labor. Growers generally report that continuous production of mums requires less labor per acre under glass than the other major crops. The crop lends itself to automatic watering, feeding, direct benching, wire mesh supports—and other labor saving devices. Really there is nothing about the crop that is a big job.

WHAT IT TAKES

To succeed with year round mum production:

1. Enough heat to maintain a 60° minimum all except for two or three of the most severe nights of the winter. Houses must be heated evenly—no cold or warm ends, etc. Thermostatic control of temperature is highly desirable. Temperatures **must** be controlled accurately.

2. Adequate ventilation. Especially as far south as St. Louis, Mo., Columbus, Ohio and Philadelphia, Penn., summer production is not recommended unless both top and side vents are available—or unless cooling is installed.

3. Growing "know how." Certainly a knowledge and experience with soils, insect-disease problems, labor management, marketing are a necessary prerequisite to making year round mums pay.

4. Capital. Year round mums can **earn** money, but it takes money to get started. For example, a grower starting a year round planting of 4,000 sq. ft. of bench area, will have close to \$2,200 invested in cloth, light and cuttings

before the first returns will come in. This assumes that no black cloth or lighting facilities are available.

BALL MUM PLANNING SERVICE

Our "MPS" stands ready to serve growers interested in year round cut flower production. Its function: to do the planning necessary to make a year round program produce what the grower wants and when he wants it. Full details on inside front cover.



Year round mums at West Chicago—the winter crop. Photo taken February 25. The variety, Mefo. It does well during the January-March period up North. Standard mums are becoming an increasingly important greenhouse crop during the winter-spring period. In the photo: Joan Bryson of G. J. B., Inc.

3

FALL MUMS FOR THE RETAIL GROWER

"Fall" mums—a few benches or a house—on most of the 15 or 20 thousand retail ranges across the U.S.—are still the backbone of the American Mum crop. Because they provide "greenhouse fresh" flowers, because they are handy in case of rush work, and because they are easy to grow, we believe they will continue to be popular among the retail growers.

For this type of mum grower, here are a few suggestions on how to make the crop pay better:

1. Plan the crop—in advance. Most important, by selection of suitable varieties, good flowers can be produced from mid-October through New Year's. **Most varieties** on the list flower during November. That doesn't mean that most of your production should occur then.

2. Include some of the unusual things. There are many distinctive and unusual varieties seldom seen on wholesale markets. Reason: they often are poor shippers. Here are a few suggestions of these out of the ordinary types: Olnurq, Illini Starflower, Luyona, Illini Snowdrift, Samovar, Rubaiyat, the Valencia varieties, the Pockett varieties, Delaware, Poinsettia, Venona, Illini Petite, Humdinger, Radiance.

3. Include pomps, standards—and some disbuds! With very little extra trouble, a retailer's fall mum crop can include all three of these flower types. This wide variety of flower types available throughout the fall season will surely be welcomed by your retail department.



Here's another good example of a retail grower fitting normal season mums into his operation. It's Ted Knapp, well known Portland, Oregon, grower (left)—shown with Jim Hogan of Geo. J. Ball, Inc. Ted uses the frames for spring bedding plants, direct benches the Mums in late June for a November crop. The sash used for bedding plants are raised as shown and plastic sides complete the enclosure. Ted finds the crop a profitable one.

Don't pass those disbuds by. They can be produced roughly twice as many per square foot as regular standards, are very showy and colorful—will often serve the same purpose as a standard at half the cost. The major part of the European mum crop is disbuds.

4. Include normal season pot mums. Simple and definite schedules and recommended varieties will be found on page 93. If followed accurately, compact good quality plants will result. No shade, no lights. Flowering period for best quality: mid-October through Thanksgiving.

Pot mums **have** become a major year round pot plant—but they are still a favorite in the fall!



Here's Kermit Swaby, successful retail grower at St. Charles, Ill., shown with his fall (normal) mums. Kermit does shade some, enough to extend his flowering season from mid-September to Christmas. He does grow Lace Spiders, Snowdrift, and other unusual types not often found on the markets—says it helps him give his trade something different. Kermit used to do his own propagating, has gone over entirely to use of specialist cuttings. He found that the propagating job came in spring just when he was the busiest, and tended to be neglected. "I'd never go back," he says.

4 YEAR ROUND POT MUMS

FOR THE RETAIL GROWER

Pot mums flowered through the spring-summer months or even year round are a highly salable crop for medium and larger retail growers. An ever-increasing number are being produced by such growers. It is a crop that will bring in an exceptionally high dollars per foot return if they are reasonably well grown. To give a rough idea: a 400 sq. ft. bench in continuous production of 6 inch pot mums will turn out better than 50 pots every two weeks. This means 1300 pots per year—at \$1.25 to \$1.75 wholesale. This would total around \$5 per sq. ft. per year. Even making a generous allowance for a week here and there of slow demand, a few culls etc., this is good money.

During the past spring, good pot mums have been in exceptional demand—especially for the holidays. Summer and fall demand has been generally good with occasional soft spots. Most growers report the least demand between January 1 and March—although many are sold then, too.

A night temperature of 65° is highly desirable for this crop—60° will do it but not as well. We have solved this problem on our range by partitioning off the last 50 feet of a 50° house—with a plastic partition. The regular heat lines were left as is. To provide the extra 15 degrees, a small unit heater with a separate thermostat was put in the 65° end. Pot mums tend to set bud more uniformly and better at 65°.

Lights and black cloth are needed at various times of the year. Our Mum Planning Service will gladly work out complete schedules for lighting, shading, pinching etc. Most growers put the essential details on labels which stay right with the plants.

Suggestions

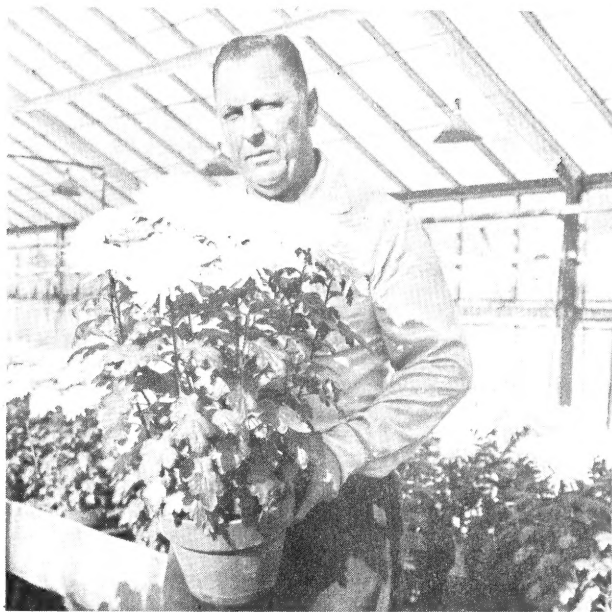
1. A part of the crop can be grown in 4 or 5 inch pots which seem to fit in well with many retail outlets. Some growers report substantially better earnings from the crop as a result of going to these smaller sizes.

2. Some growers say that occasionally when demand for flowers is keen and pots are moving slower, they help fill the gap by using the pot mums as cut flowers. Incidentally, pot mums may be held back an extra week or two by moving them to a 50° or even 45° house—but not before they are in color. If the shoe is on the other foot—good demand and not enough pots—a day and night temperature of around 65° will make them come faster. Still warmer actually retards them.

3. Use of naturally shorter, larger flowered kinds is recommended for retail growers. Among the best: Wilson's White, Bonnaffon, Delaware, Wilson's Yellow (for a nice cream), Yellow Delaware, Portrait. The taller growers will make very nice plants, but require more or less extra care.

FOR THE WHOLESALE POT PLANT MAN

Pot mums have become one of the major wholesale pot plant crops. Furthermore, their uses as a wholesale pot crop continues to increase, especially in spring, summer, and fall. Actually there was a real shortage of good pot mums the past spring in most sections of the country. Few if any of the so-called "holiday pot crops" can equal pot mums in dollars per foot sales over the year. None of them have anything approaching a year round sales season. Certainly a wholesale pot plant man is missing a good earning crop if he isn't in year round pot mums to the extent that he can move them in his area.



Here's a pot of Indianapolis that would be hard to beat for premium quality. It was grown single stem, ten cuttings to an 8 inch pot—9½ weeks pot to flower. No lights (long days). The grower (above), Charles McCannon, Premier Rose Gardens, Des Plaines, Ill. The bulk of the year round pot mum crop here is grown single stem.

Some Suggestions

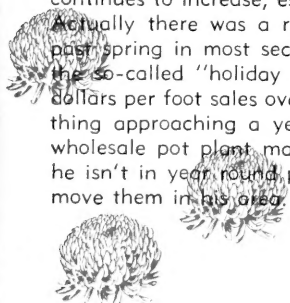
1. Flower shops look to their wholesale pot plant specialist for the latest and best in varieties as well as consistently good quality. There are some fine new ones on the list that should be in your program for '57. In whites, **Oregon** looks quite outstanding, **Monty**, nice for spring-summer. **Wilson's Yellow** is a delightful lemon yellow—midway between Indianapolis Yellow and Yellow Shasta. **Yellow Delaware** and **Georgia** are two top-notch deep yellows that should at last give Bonnaffon serious competition. Two new pinks that show promise: **Blue Ribbon** and **Personality**. Full descriptions in regular list.

2. More and more, wholesale pot men are diverting their pot mum production to sizes other than 6 inch. Growers feel that they can sell **more** plants this way, and realize more dollars per sq. ft. In some cases, growers meet opposition to a \$1.75 price for a 6 inch, but **can** get \$1.25 for a 5 inch. Quite a number are being grown in 4's. For the better class of trade, some 7 and 8 inch plants will move at higher prices.

It's one of those cases where each grower must feel out his trade.

3. **No pinch for top quality.** For the grower who has a considerable amount of the "carriage trade" shops, a spectacularly fine, large plant can be produced by growing Indianapolis and other short varieties. No pinch, ten cuttings to an 8 inch pot. Plants are given short days immediately after potting, no light. Flowers are very large—often comparable with cut flower size. A very showy 6 inch plant can be grown this way using seven cuttings to a pot. Only a bare ten weeks is needed from potting cuttings to flowering.

4. **Ball Mum Planning Service** stands ready to serve you in planning all details of your pot mum crop (inside front).



5

DISBUDS

Disbuds today are a quite small part of the American Mum crop—but we believe that the trend will be sharply up in the next several years. Not necessarily "short" disbuds, but more of regular 3½-4 inch flowers on at least 25-30 inch stems—produced year round.

Production per sq. ft. of such disbuds is almost double that of regular "standard" mums—which means that cost is roughly half as much. In other words, where standards are being grown for \$3.50 per dozen, the same bench could produce disbuds at \$2 per dozen—and at a notably better profit.

It's not that these disbuds should or will replace standards or any other part of the mum crop. Actually, they are in effect a different facet of the mum crop—and will be used in ways distinctive from standards. They are excellent for lower priced basket work—funeral, hospital, church, and home decorations. Because they ship well, are long-lasting, and easy to arrange, they are a natural for low mark-up cut flower outlets. A considerable number of large producers of year round standard mums are supplementing their standard production with a "test basis" year round disbud program. The two work well together on a year round program—and also can be combined with a pompon program.



Disbuds at Baker's, Utica, New York, Joe Baker in the photo. The variety: Indianapolis White. This was part of a several bed crop in May, and again the flowers moved without trouble. Prices (\$1.50-\$2.00) on the disbuds were some better than half as much as regular standards, but production (11-12 per sq. ft.) was double that of larger Mums.



Disbuds grown as part of the low markup flower program at Ohio State University, Columbus. On the left, Prof. D. C. Kiplinger, of the Experiment Station, and right, Mrs. Flora Jackson, in charge of the floriculture greenhouses. Kip is aiming at a 3½-4 inch flower on around a 15 inch stem. Five stems go into a sealed cellophane bag as shown above, retail for 69c. Variety, Luxury. Kip says the disbuds sell very well, as do pompons in comparable stem and bunch sizes. The bags are kept in an open refrigerated case in the chain stores till sold—not in water.

Suggestions

1. **Varieties**—there are many fine ones, and several excellent novelties this year. Among the very best in our experience and seasons for which they are best:

White	Winter	Spring	Summer	Fall
*Marblehead		X	X	X
Queen's Lace		X	X	X
*Iceberg	X	X	X	X
Shasta	X	X	X	X
*Ind. White	X	X	X	X
*Mefo	X	X		X
Sentinel		X	X	X
White Norma	X			X
Ice Cream		X	X	X
L. I. Beauty	X			X
Belray	X	X		X
*White Peter John	X			X
White Valencia				X
Yellow	Winter	Spring	Summer	Fall
*Harvest Golden		X	X	X
Sunburst		X	X	X
*Blazing Gold		X	X	X
*Luyona	X	X	X	X
*Good News		X	X	X
*Yellow Ivanhoe	X	X	X	X
*Chairman		X	X	X
Gold Lace		X		X
*Yellow Mefo	X	X		X
Nectarine		X		X
Crescendo			X	
*Luxury			X	X
Yellow Shasta	X	X	X	X
*Ind. Yellow	X	X	X	X
Yellow L. I. Beauty	X			X
Yellow Peter John	X			X





Meet the Just-Rite mum—and its creators, Hub White (right) of White Bros. Rose Co., Medina, N. Y., and Ken Nelson, production manager. "Par" here is a stem length of around 24 inches, flower size of 3½-4 inches. Production of disbuds here is still in limited quantities, but Hub reports good demand for them, and an encouraging dollars-per-foot per year return. Note the attractive combination cardboard and Cellophane package.

Bronze	Winter	Spring	Summer	Fall
*Mayford's Triumph		X		X
*Amber Bright		X	X	X
*Ivanhoe	X	X		X
Fred Yule		X		X
*Detroit News		X		X
Paragon		X		X
Ind. Bronze	X	X		X
Ind. Apricot	X	X		X
Dk. Ind. Bronze	X	X		X
*Olnura		X		X
Ill. Warpaint				X
Calverts Gold	X			X
Apricot Valencia				X
Bronze Peter John	X			X

Pink	Winter	Spring	Summer	Fall
Mary Garden		X		X
Thomas Johnson		X		X
Pennant		X	X	X
Pandora				X
*Ind. Pink	X	X		X
Cadenza	X	X		X
Humdinger		X		X
*Blue Ribbon		X		X
Laughter	X	X	X	X
Merriment	X	X		X
Dk. Norma	X			X
Delmar		X		X
*Almega	X	X		X
Dk. Pk. L. I. Beauty	X	X		X
Calverts Pink				X
Pink Peter John	X			X
Thanksgiving Pink	X			X
Orchid Valencia	X			X
Enchantress				X

2. Schedules in outline form for year round disbuds are given below. These schedules should produce a minimum of around 25 inches of stem on most varieties round the year. If longer stems are desired, one or two more weeks of long days should be given.

As with other mum crops, the very best results will be achieved if a separate "program" is set up for growing disbuds—so that just the right number of long days, etc., can be provided for each crop—and so that no time is wasted. However, it is quite practical to combine year round disbuds (using schedules given below) with regular year round standard mums. Quite a few growers are going after disbuds in just this way—half a bench once or twice a month combined with their regular standards.

Our Mum Planning Service will be glad to work out a disbud program tailored to fit in with your other mum crops.

DISBUD SCHEDULES

For Flowering Period	Weeks plant to pinch	Weeks pinch till start of short days	Weeks start of short days till flowering	Response Group that can be used
Jan. 1	3	3	11	10-11
Mar. 15				
Mar. 16	3	3	10	10
April 15				
April 16	3	2	10	9-10
April 25				
April 26	3	1	10	9-10
May 30				
June 1	2	1	10	9-10
June 15				
June 16	2	0	10	9-10
July 31				
Aug. 1	1	1	10	9-10
Oct. 15				
Oct. 16	2	1	10	9-10
Oct. 31				
Nov. 1	2	2	10	9-10
Nov. 30				
Dec. 1	3	2	10	10
Dec. 15				
Dec. 16	3	3	10	10
Dec. 31				

Spacing: for winter crop 6 x 4 (or 6 x 5), two stems per plant, in summer-fall, 6x6, three stems per plant. Same temperatures as for standards.



Ivanhoe (right) and Luyona (left) as disbuds at West Chicago. Our experience over the past year has shown that the regular retail shop trade will buy 26-28 inch stems, 3½-4 inch flowers, at \$1.50 to \$2.00—for baskets, funerals, etc. However, the 16-20 inch stems are hard to move through these channels. Markets for these shorter grades can and will be developed—probably to a great extent through various low markup outlets. In the photo: Joan Bryson, G. J. B., Inc.

6

MUMS FOR LOW MARK UP SALES

Out of all the talking and writing about cash and carry flower sales is gradually emerging a rather substantial volume of **actual low mark-up sales**. A surprising number of commercial growers right now, today are growing plants specifically for this purpose—and at a profit. And here again, the versatile Chrysanthemum is prominent. If the trend of the past year or two continues, mums in various forms sold both through retail flower shops and non-flower outlets at low mark-up should become an important crop.

Here's a combination worth trying on your cash and carry trade. The mum: new Yellow Delaware — compact, very showy. The container: the new Alumipot, 3 inch. Schedules for the mums on page 83. Details on the container, page 129. There's a 4 inch Alumipot available this year, too.



Three Inch Pot Mums

For various reasons, **pot plants** rather than cut flowers have taken the lead in these low mark-up sales thus far. Main reason: they remain salable longer and are less prone to damage in shipment.

Those who have actually grown and sold small pot plants for this type of trade generally agree that the most salable and most satisfactory plant for it is a well grown 3 inch pot mum. Many other plants are and should be grown—for the sake of variety among other things—but the small pot mum is the starting point.

Why? Main reason as we see it: they can be produced on a predetermined schedule 52 weeks a year with uniform quality; they are inexpensive and easy to grow; they are showy; and they are durable and long-lasting.

Prof. Donald Kiplinger of Ohio State University actually sold many thousands of various 3 inch pot plants through markets, says, "Potted Chrysanthemums were by far the fastest (flowering pot plant) moving item of all those offered over any considerable period. It was also noted that there was much interest shown by customers in garden varieties. Of the year round varieties (offered), Bonnaffon DeLuxe, Queen of the Pinks, Portrait, Granite State, and Wilson's White accounted for most of the sales."

Can 3 inch pot mums be sold year round through low mark-up outlets? Indications thus far show heavier demand from Valentine's Day through June. Also sales tend to build up for the holidays. However there is demand throughout the year if it is aggressively cultivated.

Containers and packaging

Lot's of possibilities here!

Take for example a well grown 3 inch pot mum in a shiny and attractive aluminum pot—how much more attractive! Considering that the plant can be **grown** in this container too, it would seem a natural for the job. These aluminum pots are coming out in various colors, and soon in larger sizes to accommodate all phases of this low mark-up growing.

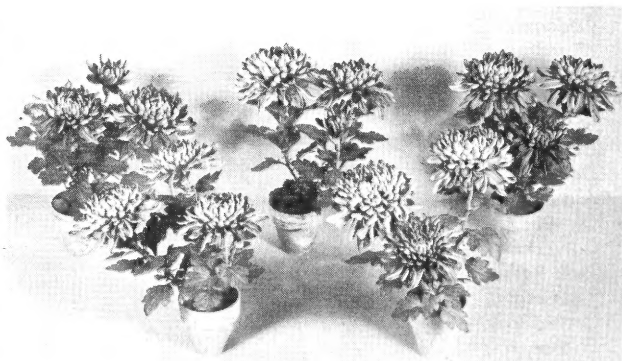
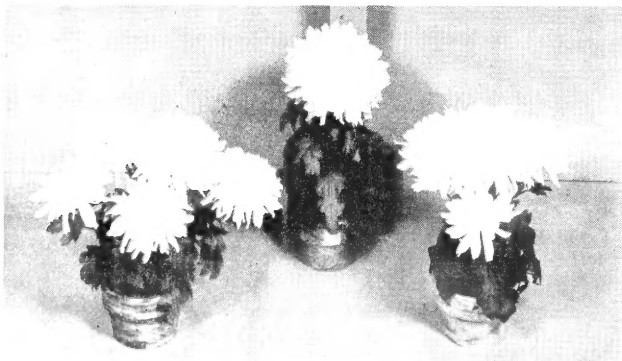
There is a very attractive "wrapped in cellophane" packaging deal for these smaller sized pot plants—described and pictured in **Grower Talks**, April 1956, page 20. In the same issue: a more complete story on this whole subject of cash and carry sales of plants and cut flowers.

Cut Flowers

Less has been done in actual sale of cut mums through low mark-up outlets—but certainly the potential in sales is every bit as good as with pot mums. Again the factor of keeping quality is important—as was found in several test sale projects through markets.

Some sort of packaging that will protect the flowers but also display them to advantage is very important. The **Grower Talks** story mentioned above includes an interesting suggestion on this.

Disbuds offer much promise here. Production cost is low, lots of show, good durability—and of great importance where cut flowers are sold to the public, they are easy to arrange.



A group of 3½-4 inch pot mums grown at Texas A. & M., part of Doc DeWerth's very well done "cash and carry" project. From the left: Wilson's White, plant, pinch, shade same date. Second from left: Wilson's White, no pinch. Shaded same day it was potted. Third from left: modified second pinch—see page 80. Three plants on right are Delaware in 3½ inch pots. No long days, one pinch, same day they were potted. These plants averaged 60-65 days plant to flower. Spacing at flowering, 6 per foot (4 inch), 9 per foot (3½ inch). Photo: Texas A. & M.

Before You Go any Further...

WHEN TO BENCH CUTTINGS (for normal flowering)

For a safe rule, bench cuttings directly to the flowering bench 3 weeks prior to the pinch dates shown throughout this list. Especially on the November-December flowering crops, many growers plant only two weeks prior to pinch dates. Growing conditions must be favorable if adequate stem length is to be achieved. It is possible, especially on the late December crops, to bench cuttings just before or on the pinch date, pinch in two weeks. Somewhat shorter stems will result, but with good flowers. Another possibility is to plant cuttings closer (6 x 4 inches) on the pinch date, allow them to grow no pinch. Normal stem length and fine flowers will result, but more cuttings are required.

WHAT IS AN "EIGHT-WEEK" VARIETY?

Note that all varieties in this guide are classified under a response group heading—"6-week varieties"—7-week, 8-week, etc. What does it mean and why is the term used?

It is primarily a term of use in connection with controlled flowering—under lights and shade. It refers to the number of weeks of short days needed to make the variety flower. For example, an 8-week variety is one which will "respond" (or flower) 8 weeks after short days are started. Starting short days is accomplished in summer with black cloth, in winter simply by discontinuing lights at night.

The response group classification is of use to the normal season grower, too. The 6 to 8-week varieties are generally the garden or hardies (flowering in late September thru October). The 9 to 11-week kinds are the November flowering ones, the 12 to 15-week kinds are the lates—December flowering. Nearly all cloth house crops take the 9 to 11's. Most pot mum growers use 9 to 11-week kinds, too.

PREMATURE BUD-SETTING

If cuttings for fall mums are ordered to be delivered in winter or early spring (September 1 to May 1), they must be lighted to prevent bud-setting on very short stems. Use 60-watt bulbs 4 x 4 ft., 60 inches above soil. Light four hours per night (10 P.M. to 2 A.M.)

The Garden varieties and the early shading mums (such as Good News) are especially apt to throw premature buds.

Lower temperatures help to avoid early buds. Few varieties will set buds at 35-40° nights, even without lights. Some varieties (Good News, the hardies, etc.), if cuttings are planted to a very warm house (65° nights), will set a few buds even though they are lighted.

"DISSPRAY"

Partial disbudding can do wonders to improve quality of certain varieties of pompons—at certain seasons. The problem is, of course, that the spray tries to produce too many buds—so many that none of them can develop into good sized flowers. Removal of part of these buds is "disspray" procedure. You'll find the word in descriptions of many varieties in this Guide.

How to do it? As soon as the buds have separated enough so that individual buds can be removed conveniently, go thru and remove all but four or five buds, leaving the best 4 or 5 nearest the top of the spray. Then, to finish the job, the side shoots or "suckers" along the stems just below these five flowers should also be removed.

Some varieties at certain seasons (winter usually) tend to produce a clubby or too tight spray. The peduncles fail to elongate enough. Removal of the center bud as soon as convenient to handle it will help this problem.

If you haven't been doing this partial disbudding, pick out a bench that's throwing too many buds, "disspray" a few plants. You'll be surprised at the results.

INSTRUCTIONS FOR ORDERING MUMS

The minimum total order that can be accepted is 500 cuttings.

Fifty of each variety is the minimum that can be supplied. More than 50 of a variety must be in multiples of 50.

Orders must be marked with a definite delivery date, such as May 10th, June 1st, etc. Orders marked "Early Delivery," "Deliver when ready," "Spring Delivery," are too indefinite.

In writing your order, please use special order blanks enclosed with this catalog.

Prices subject to change without notice.

LIMITATION OF WARRANTY

Geo. J. Ball, Inc., warrants to the extent of the purchase price that seeds, plants, or bulbs sold are as described on the container within recognized tolerances. Seller gives no other or further warranty, express or implied.

SUBSTITUTIONS

We will substitute varieties as good or better for any items not listed in this catalog unless order is marked **No Substitutions**.

SHIPPING INFORMATION

Special shipping instructions and address if different from your regular mail address should be shown on your order.

All cuttings are shipped Railway Express, Air Freight or Air Express, collect. If you have any preference, designate on your order; otherwise our shippers will use their best judgment. Cuttings are in perfect condition when they are accepted by the transportation company. Therefore, if there is any damage enroute from being broken, heated or frozen, **CALL YOUR EXPRESS or AIR FREIGHT AGENT** to inspect the shipment upon arrival, marking on express receipt or bill of lading the condition of the package and amount of damage, etc. **YOU MUST FILE CLAIMS**, as our responsibility ceases when the carrier accepts shipment. We cannot be responsible for the safe arrival of your cuttings. **Do not return cuttings to us or to the propagator.** Advise us of errors in shipment and we will make adjustment.

**IMPORTANT: ABSOLUTELY NO CHANGES ON YOUR ORDER CAN BE ACCEPTED
WITHIN 30 DAYS OF DELIVERY DATE**

Standards

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

WHITE

Variety and Description 8-Week Varieties—Pinch July 10

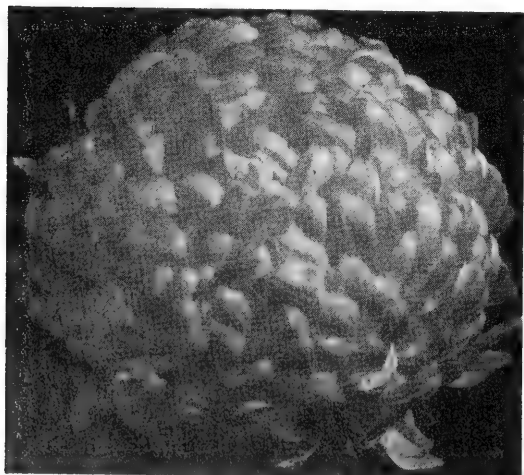
- D White Pink Chief** (NEW—Mee Bros.). Intermediate pure white incurved. Selection from Pink Chief. Responds and develops well under high temperatures. Standards, and fast disbud programs. (September-October).
N Silver Sheen. Pure white medium sized incurved. Best for September shading and normal season under glass. Sets bud at 54°
White Chief. Medium large.
Christina. Small incurved. Pot plant.

Normal Flowering Date	Price 50 Only
Oct. 15	\$5.50
Oct. 20	4.00
Oct. 20	4.50
Oct. 23	4.75

9-Week Varieties—Pinch July 16

- N Ambassador**. Medium large semi-incurved white. Used heavily in the South for normal season flowering.
P Granite State. Pure white disbud. Good pot plant variety October through June. Compact spreading habit. Flowers not large, but very formal and attractive.
D Marblehead. Attractive pure white incurved. At its best as a disbud May-November. Holds fair size through the summer, also good on short disbud program. Good standard mum May-June and mid-September-October. No pinking at low temperature.
Mrs. Robinson (NEW—see below.) Medium large white incurved standard. Beautiful form and heavily petalled. Popular All Saint's Day standard as a southern field and cloth house variety.
Nightingale. Beautiful white spider variety with chartreuse center.
N Silver Queen. A valuable white Fujii mum. Improves Rayonnante.
N Albatross. A large incurved pure white standard. Used most heavily in California cloth house and greenhouse production. Year round except for winter in northern California. Very reliable bud set (54°) and exceptionally good shipper. Also fine for eastern greenhouses mid-September to Thanksgiving.
Kay Tashima. Spider.
P Luna. Small pleasing light cream incurved. A fine pot plant year round (short treatment). Compact habit, prompt bud set, even at 54°.
PDN Queen's Lace. Very artistic pure white Spider mum. Does very well flowered mid-March to mid-June, then again in early fall. Some tendency to burning of petals and dark green centers during summer. Also a very showy pot plant—year round. Queen's Lace and its sport are not of the "hooked" lace types—ends of petals hang straight so they don't tangle with one another. Good disbud April-November 15.
Snow White. Large incurved white.
D White Mary Garden. White sport from Mary Garden. Spider.
P Wilson's White. Fine medium large paper white incurved. By a wide margin, the number one white pot mum on the list. Valuable pot mum year round, but at its very best Valentine's Day to Decoration Day. Very compact and spreading habit, free breaking, and sets buds easily and evenly. Short treatment. Occasional brown centers usually controlled by slower growing schedules now used. Keeping plants in the greenhouse till fully opened helps.

Oct. 25	4.50
Oct. 25	4.25
Oct. 25	4.25
Oct. 25	4.50
Oct. 25	4.50
Oct. 25	4.75
Nov. 1	3.50
Nov. 1	5.00
Nov. 1	4.25
Nov. 1	4.00
Nov. 1	3.50
Nov. 1	4.75
Nov. 1	3.50



←MRS. ROBINSON

New to our list this year. A very much used white Mum for All Saint's Day in the South, and also for cloth house flowering.

OREGON→

New this year, and in our opinion one of the top two or three of the '57 introductions. Very compact growing as can be seen above, very large flowered, pure white, and a good grower. Give it a trial! Above plant, one cutting in a 4-inch pot.



SENTINEL & WHIRLWIND

Sentinel (top two flowers) and Whirlwind (bottom flower). Roughly half of the Mums grown today are standard (large) kinds. Half of the standard Mums grown are white. Here are two brand new white standards which we feel well worth including in your plans for '57. Sentinel seems highly promising for spring, summer, and fall as a bread-and-butter white. Whirlwind is more of a novelty, recommended mainly in summer and fall.



WHITE STANDARDS

- P**—Varieties best for pot culture
D—Varieties that make good disbuds
N—Best varieties for fall or natural season flowering (without shade)

Variety and Description	10-Week Varieties—Pinch July 22	Normal Flowering Date	Price 50 Only
N Giant Betsy Ross. A very showy, nearly pure white large incurved standard. Because it needs heat to develop properly, and because it stands summer heat during flowering rather well, it is by an easy margin the number one standard for the summer crop June 15-September 15. It is long stemmed, and quite large flowered. Harder and a better shipper than the parent variety. Excellent at normal season.....		Nov. 5	\$3.50
PDN Indianapolis White. Medium large incurved pure white. By a wide margin, the top white standard on the list. Very heavily used in year-round greenhouse production mid-September to mid-June. Grown some over the summer, but tends to sunburn—especially if not cooled. Very reliable and a reasonably good shipper. Also important pot plant year-round—tall treatment. Rather shy breaker usually grown six cuttings to 6 inch pot. Excellent pot plant grown single stem, 7 cuttings per 6 inch. No lights. Very important disbud year round.		Nov. 5	3.00
P Oregon (NEW—see photo opposite page.) Large white semi-incurved. Exclusively a pot plant variety. September through July (short treatment). Stronger habit, larger and more beautiful flowers than Wilson's White. Compact, short, rigid growth and vigorous breaking action. Flowers develop most rapidly when finished at 60° or less. Will rapidly become the favorite white mum for pots. Does not blacken its centers during the winter months.		Nov. 5	5.50
P Richard Mandel. Large ivory for pot plants.....		Nov. 5	5.00
N White Rayonnante. Important white spider.....		Nov. 5	4.50
Whirlwind (NEW—Yoder Bros.—see above.) Large pure white reflexed standard. July-November cut flower. Requires high summer temperatures for best response and development. Supplement for Betsy Ross. More durable, strong growth and heavy petalage. Shaggy, interesting new form. Standard programs.....		Nov. 5	5.50
Susan Leighton. Large ivory white spider used on greenhouse cut flower programs October-November. Also for pot culture June-November (tall treatment). Intolerant of low intensity. Finish cool. Showier flower than Queen's Lace.....		Nov. 6	4.75
D Sentinel (NEW—Yoder Bros.—see above.) Intermediate ivory white tightly incurved standard. Vigor and habit resemble Mefo. Hard flower, durable and tolerant of heat in summer. Requires high light intensities. Standards and fast disbud programs April-November. A more durable shipper to supplement Betsy Ross in the summer program.....		Nov. 8	5.50
N Crystal Queen. A sport from Orchid Queen. Improves Jean Elizabeth in clarity of color and compactness of flower. The "Queens" are used for the winter greenhouse crop—flowered from November 1 through June 15.....		Nov. 10	4.00

WHITE STANDARDS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description		10-Week Varieties—Continued	Normal Flowering Date	Price 50 Only
	Jean Elizabeth. Large semi-incurved.....		Nov. 10	\$4.50
	Kegon's White. Spider. Displays long, protruding ray petals having hooked spoons, and tightly incurved centers. Grown in southern California. Standards mid-September through mid-November.		Nov. 10	4.50
DN	Mefo. Fine large incurved creamy white standard. Top-notch white standard for the winter greenhouse crop. At its best December through March. Must be finished reasonably cool. We find some open centers if flowered during warmer months. Will set at 56°. Also much used for shading and normal fall crops. Excellent disbud late fall—early spring. Long stem, reliable bud set.....		Nov. 10	3.50
N	Monument. Intermediate incurved, important for fall crop.....		Nov. 10	4.25
	White Fern Edwards (NEW). Large pure white incurved for September 15-November 15 cut flowers. A west coast variety. Requires high light and low temperature finish.....		Nov. 10	4.50
	White Pockett. Large incurved exhibition.....		Nov. 10	4.75

11-Week Varieties—Pinch August 5

	Sterling. Large incurved.....	Nov. 15	4.75
N	Marketeer. Medium large chalk white incurved. For greenhouse cut flowers March-April and October-December. Disbud October through April, pot plant October-November (tall treatment).	Nov. 18	4.25
	Indiana Market. Intermediate incurved, similar in habit to December White.....	Nov. 20	5.00
	White Frick. Intermediate incurved.....	Nov. 20	4.75

12-Week Varieties—Pinch August 10

N	Chattanooga. Large incurved white. Much used for normal flowering. Some southern growers light the Chattanooga varieties for December through March flowering. They are quite large flowered, especially finished at cooler temperatures.....	Nov. 25	4.25
D	White Peter John. Clear white decorative. Greenhouse crop October-December grown some under cloth. Fast disbud October-January 15. 60° minimum for bud initiation, 55° for bud development.....	Nov. 25	5.00
DN	December Glory. Medium large incurved white standard. The number one standard for late normal flowering. Disbud November-December.....	Dec. 1	4.00
	Margaret Moeller. Intermediate incurved.....	Dec. 3	4.50

13-Week Varieties—Pinch August 15

	White Mistletoe. Intermediate incurved. Needs 50° to finish.....	Dec. 5	4.75
N	Smith's White. A semi-incurved white. Heavily used for late normal blooming. Holds well for Christmas	Dec. 10	4.00
	December White. Intermediate incurved.....	Dec. 15	4.50
	Snowline. A large showy white flower. Form of flower resembles that of the Pocketts and Helen Frick. Must have 60° to set buds.....	Dec. 20	4.75

PRICES FOR MORE THAN 50 OF A VARIETY ON ONE SHIPMENT

Note carefully instructions for ordering on page 9. No orders for less than 50 rooted cuttings of a variety accepted. Minimum total order, 500 cuttings.

50 only	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50
100-250 per 100.....	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25
300-450 per 100.....	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00
500-950 per 100.....	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75
1000-up per 100.....	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50

YELLOW STANDARDS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description 8-Week Varieties—Pinch July 10

	Normal Flowering Date	Price 50 Only
D Celestra. Small semi-incurved. Lemon yellow. Disbud.....	Oct. 15	\$4.75
P Gold Lode. Intermediate reflexed. Pot plant and disbud.....	Oct. 15	4.75
D Harvest Golden. Large deep golden yellow decorative. Bold, fine color. Excellent disbud April-November.	Oct. 15	4.50
Honeysweet. Semi-incurved disbud. Medium yellow. Showy garden variety as a disbud. Durable at high temperatures.....	Oct. 15	5.00
Valiant. Small, semi-incurved Moonlight yellow.....	Oct. 15	5.00
Butterball. Intermediate incurved. Pot plant.....	Oct. 20	4.50
N Mrs. Kidder. Intermediate incurved.....	Oct. 20	4.25
P Sunburst. Medium large bright golden yellow reflexed decorative. Very showy bright yellow pot plant March 1-November 1 (tall treatment). Flower type rather loose and shaggy. Free and even blooming and very showy. Sets buds at 54°. Stands summer heat very well. Free breaker and vigorous. Disbud for March-November. See below.....	Oct. 20	4.25
PDN Blazing Gold. A medium sized semi-incurved bright yellow standard. Used heavily as a pot mum the year round except for January-February (tends to bronze). It is a reliable bud setter, medium short pot plant habit, has a hard flower that will stand abuse. It does not break freely from the pinch so is often given one extra cutting per pot. Coming into more use as a disbudded flower—easy to grow and again, durable.....	Oct. 23	3.75

9-Week Varieties—Pinch July 16

P Georgia. Intermediate incurved. Flowered at seasons for which it is recommended, Georgia will make a very showy yellow pot mum. It is large flowered, naturally a compact grower, has a pleasing medium deep yellow color. It is recommended from early March through November, short procedure. Not happy under low light conditions of northern winters. It sets bud rapidly and uniformly. A definite improvement on Blazing Gold. Tolerates 54°.	Oct. 25	4.25
DN Luyona. Large yellow spider mum. Quality bloom. Fine stem. Excellent standard year round under glass. Seems to lose petalage some at high temperatures. Very pleasing disbud year round. Petals stand out horizontally.....	Oct. 25	4.50
Moribana. Yellow spider tube.....	Oct. 25	5.00
Smith's Superlative. Intermediate semi-incurved.....	Oct. 25	5.00
Sunglow. Large golden yellow.....	Oct. 25	4.50
Yellow Ambassador. Intermediate semi-incurved.....	Oct. 25	4.75
PDN Gold Lace. Golden yellow sport. Heavily used as pot plant year round (tall procedure). Good spreading free breaking habit for pot culture and very showy plant, but will usually require staking. Use as novelty cut flower and disbud March 15-November 15.....	Nov. 1	4.25
DN Good News. Medium large fine golden yellow standard. One of the top two yellow cut flower standards. Definitely number one for the June 1-November 1 greenhouse crop, stands summer heat well. Also number one yellow standard for the California cloth house and greenhouse crop March 15-December 15. Hard flower and excellent shipper. Tends to short stem. Tolerates 54°. Fine at normal season, and excellent disbud April-November.	Nov. 1	3.00
Hooked Yellow Lace. Sport of Yellow Lace. Spider.....	Nov. 1	5.00
P Yellow Lace. Lemon yellow sport of Queen's Lace. Important year round pot plant.....	Nov. 1	4.25

YELLOW BETSY ROSS

Here's a pleasing lemon yellow sport of ever popular Giant Betsy Ross. It's not quite as large as Giant Betsy, but otherwise identical—and equally satisfactory for the summer and fall greenhouse crop.

YELLOW DELAWARE

A fine bright yellow sport of Delaware. As with its parent, it's short growing, large flowered, and very dependable and even in bud-set. We feel the trend will be toward Yellow Delaware for a deeper yellow and Wilson's Yellow for the lemon yellow in pot Mums.

SUNBURST

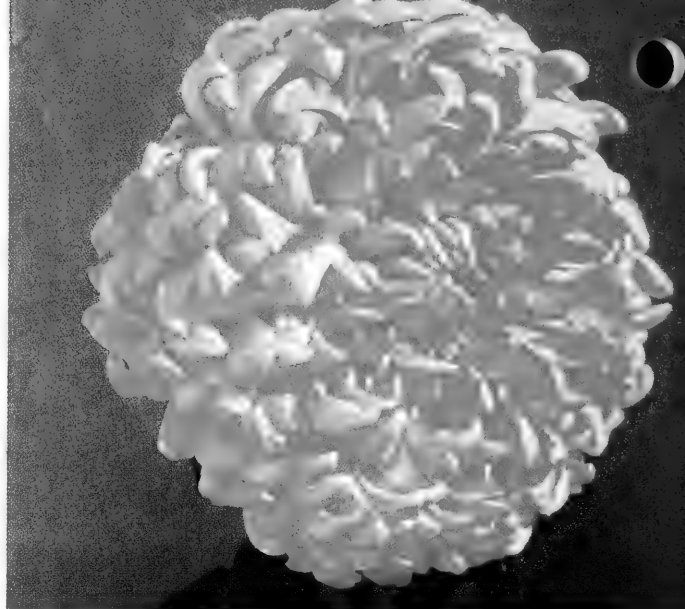
A very showy bright golden yellow pot Mum. Noted for exceptionally free flowering habit, and very bright golden yellow color.





WILSON'S YELLOW

After many years, old favorite Wilson's White has turned up a yellow sport. Has the same outstanding compact and large flowered habit as Wilson's White, and a pleasing lemon yellow color. We feel that this will be the top-notch lemon yellow pot Mum for '57.



YELLOW CALYPSO

One of the more promising of the European imports, Yellow Calypso is very compact and very large flowered. Quite popular abroad as a pot plant. We feel there will be a place for the Calypsos (White, Yellow, and Bronze) in the American trade. Strictly for pots.

YELLOW STANDARDS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description

9-Week Varieties—Continued

- P Wilson's Yellow.** (NEW—Ball). Very pleasing luminous lemon yellow sport of Wilson's White. About the same depth of color as Indianapolis Yellow. Has same large showy flowers, compact spreading growth, and reliable bud-setting habit that has made its parent the top selling white pot Mum. Lemon yellow shades are actually in as much demand as deep yellow in poms (Yellow Shasta, Crescendo), standards (Ind. Yellow), and in Snaps and Roses. We look for Wilson's Yellow to become the number one lemon yellow pot mum. Recommended for pot culture only, year round except during hot weather. Short treatment. Color photo above.....
- Yellow Albatross.** Large incurved, light lemon yellow.....
- D Yellow Ivanhoe.** Golden yellow sport. Excellent as disbud year round.....

Normal Flowering Date

Price 50 Only

Nov. 1	\$5.50
Nov. 1	5.00
Nov. 1	4.50

10-Week Varieties—Pinch July 22

- D Chairman** (NEW). Large golden yellow decorative. Standards and fast disbud March-December programs. Tolerant to low temperatures for bud initiation. Vigorous.....
- P Dark Indianapolis Yellow.** Slightly shorter habit than Ind. Yellow. Best response. Deep lemon. **Kauai.** Lemon spider.....
- Imp. Indianapolis Yellow.** Light golden yellow selection of Ind. Yellow. Best in winter.....
- Indianapolis Gold.** (NEW—Yoder Bros.). Large incurved standard. Color intensifies the present Dk. Ind. Yellow. Same growth habit and flower size. Pots and fast disbuds May-November. Standards May-June, September-November.....
- PDN Indianapolis Yellow.** Medium large incurved yellow standard. Ind. Yellow and its sports are by far the most heavily grown yellow standards. Most heavily used as greenhouse cut flowers September 15-June 1 although many growers flower them all summer, especially with cooling. Color a fairly deep lemon yellow. Excellent at normal season. Top-notch disbud year round and extensively used as such. Important pot plant variety year round.
- Sue Sally Jones.** Large lemon yellow spider. Greenhouse cut flower September 15-November 15. Requires high light and low temperature.....
- Yellow Betsy Ross** (NEW—Smith—See page 13.) Intermediate lemon yellow incurve. Exhibits same high temperature tolerance of parent variety. Shorter growth habit. Restrict flowering to July-September under glass. Somewhat smaller in size but tightly incurved.....
- Yellow Curly Spider.** Clear yellow spider-mum. Good shipper.....
- N Yellow Rayonnante.** Yellow sport of Rayonnante. Spider.....
- Yellow Waikiki.** Lemon spider.....
- Yellow Leighton** (NEW—DeRooy). Spider. Lemon yellow sport from Susan Leighton. Standards October-November. Pots June-November (tall procedure).....
- P Yellow Calypso** (NEW). Large lemon yellow incurved. Very short. Exclusively a pot plant variety. Medium treatment April 15-July 1 and September-November. Sport of Bronze Calypso. Single pinch. Best results are obtained with high temperature initiation and low temperature development. Flower size comparable to Indianapolis. See above.....

Nov. 5	5.50
Nov. 5	3.50
Nov. 5	5.00
Nov. 5	3.25
Nov. 5	4.25
Nov. 5	3.25
Nov. 5	4.50
Nov. 5	5.50
Nov. 5	5.00
Nov. 5	4.50
Nov. 5	5.00
Nov. 6	5.50
Nov. 8	5.50

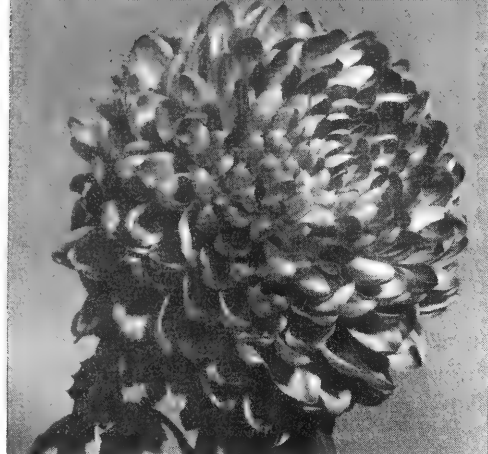
YELLOW STANDARDS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description		Normal Flowering Date	Price 50 Only
10-Week Varieties—Continued			
P Yellow Delaware (NEW—O.S.U. See page 13.) Intermediate deep lemon incurved sport from Delaware. Pot plant programs. Short treatment year round. The same valuable chassiss in a brilliant new color. Less sensitive to low temperatures for bud initiation than Bonnaffon DeLuxe for the late winter and early spring flowering period.....		Nov. 8	\$5.50
Cream Mefo. A cream colored sport from Mefo. Best form of the yellow Mefos. Tolerates 56°.		Nov. 10	4.50
Jamboree. Intermediate incurved.....		Nov. 10	5.00
Yellow Beauty. Small incurved.....		Nov. 10	5.25
DN Yellow Mefo. Fine large incurved yellow. An excellent yellow standard for early October, through the fall, winter, and spring. Responds quickly and well to lighting and shading. A fine large flower and a fair shipper. We have best results with Mefo in year round cut flower programs from about Christmas until late March. If flowered during warmer months, it tends to show centers and also to "drooping" of petals.....		Nov. 10	3.75
N Yellow Monument. Intermediate incurved. Important in fall.....		Nov. 10	4.25
Yellow Pockett. Large incurved.....		Nov. 10	4.75
N Yellow Queen. A large semi-incurved light lemon yellow standard.....		Nov. 10	4.00
Honeydew. Intermediate incurved.....		Nov. 12	5.00
11-Week Varieties—Pinch August 5			
Lorraine. Spider, hooked tube.....		Nov. 15	4.75
Yellow Marketeer. Yellow sport from Marketeer. Disbud October-June.....		Nov. 18	4.50
P Bonnaffon Deluxe. Medium small golden yellow incurved. Still by far the most heavily used of all varieties for pot growing. Compact spreading habit, ideal for pot culture, and a free breaker after the pinch. Makes a good plant 12 months out of the year. Requires 65° for even bud-set. Medium treatment year round.....		Nov. 20	3.00
N Friendly Rival. Intermediate incurved. Intense golden yellow.....		Nov. 20	4.25
Maj. Bonnaffon. Medium sized incurved. An oldtimer that ships well and is being revived due to popular demand.....		Nov. 20	5.00
Purdue. Intermediate incurved. Lemon yellow.....		Nov. 20	5.00
N Harvester. Medium large deep lemon yellow incurved. Valuable for Thanksgiving, and under glass. Winter-early spring.....		Nov. 23	4.00
Marie DePetris. Medium large deep yellow incurved for November 15 to January 1.....		Nov. 23	4.25
12-Week Varieties—Pinch August 10			
Dark Yellow Chattanooga. Deep yellow sport. Fine for Thanksgiving.....		Nov. 25	4.50
Golden Pearson. Intermediate incurved. October 15-April 1.....		Nov. 25	4.25
Mrs. Calkins. Intermediate incurved.....		Nov. 25	5.00
Sungold. Intermediate incurved. Pot plant at normal season.....		Nov. 25	4.50
N Yellow Chattanooga. Large incurved yellow. Heavily grown for Thanksgiving (normal) and for fall shading.....		Nov. 25	4.50
D Yellow Peter John. Medium large light lemon yellow. Needs 60° for bud set and 55° for development. Used as standard and disbud October 1-January 15. Stands outdoor and cloth house flowering better than most standards.....		Nov. 25	5.00
D Yellow Glory. Intermediate incurved, lemon yellow. Color mutation from December Glory. Standard and disbud programs mid-November through January.....		Dec. 1	4.75
Yellow December Glory. Medium incurved, sport of December Glory.....		Dec. 1	5.00
N Golden Mrs. Ross. Large incurved. Fine at normal season.....		Dec. 3	4.25
Yellow Moeller. Sport of Margaret Moeller. Note quite as large, or tall as parent.....		Dec. 3	4.75
13-Week Varieties—Pinch August 15			
Chalice. Intermediate incurved.....		Dec. 5	5.00
Golden Mistletoe. Intermediate incurved.....		Dec. 5	5.00
N Tobin's Yellow. Medium sized semi-incurved yellow standard. Tobin's is the yellow most widely used for late December flowering normally—without lights.....		Dec. 10	4.00
Smith's Cream White. A beautiful smooth cream colored sport from Smith's White.....		Dec. 10	4.50
Dauntless. Small semi-incurved.....		Dec. 13	4.75
N Meteore. Intermediate semi-incurved. For late natural crops.....		Dec. 13	4.50



BLUE RIBBON

Very promising new bright lavender pink both for pot culture and as a disbud. Much better color than Queen of Pinks.

P—Varieties best for pot culture **D**—Varieties that make good disbuds **N**—Best varieties for fall or natural season flowering (without shade)

Variety and Description

8-Week Varieties—Pinch July 10

	Normal Flowering Date	Price 50 Only
DN Pink Chief. Medium size lavender pink standard. Excellent in natural season and mid-September through October. Used somewhat as disbud too.....	Oct. 15	\$4.25
Major Bowes. Intermediate incurved lavender standard. For early flowering outdoors and as a pot plant in the greenhouse. Disbud.....	Oct. 20	4.75

9-Week Varieties—Pinch July 16

DP Blue Ribbon. (NEW—Yoder Bros.). Small bright lavender pink incurved standard. For 60° pot plant programs the year round. Color markedly improves Queen of Pinks especially during high temperature periods. Responds sharply and develops well at 56° with additional stretch. Superb fast disbud. Best when grown at 56°. See above.....	Nov. 1	5.50
Bunbu. Lavender spider.....	Nov. 1	5.00
DN Mary Garden. A pink spider. Standard and disbud spring and fall.....	Nov. 1	4.50
N Mrs. Walker. Spider. Pink tube and hook.....	Nov. 1	5.25
P Queen of Pinks. Small incurved pink standard. Fine compact pink pot variety. Heavily used from September through May. (Medium treatment). Very pleasing soft color. Some tendency to uneven bud-set, and not a generous breaker after pinching so is usually given one extra cutting per pot.....	Nov. 1	3.75
Sugarplum. Intermediate incurved. Luminous pink for fall.....	Nov. 1	5.00

10-Week Varieties—Pinch July 22

PDN Indianapolis Pink. A medium large incurved standard, a bright pink shade. It is this fine color plus the general good habits of the Indianapolis varieties that has made this definitely the number one pink standard for cut. Like the bronze, it will fade badly during hot weather, but it is much used the rest of the year—both for normal season and year round production, fall till spring. Sets at 54°. Fine disbud (November-June) and pot plant.....	Nov. 5	3.50
J. W. Prince. Intermediate incurved.....	Nov. 5	4.50
N Rayonnante. Spider. Heavily used under cloth in California.....	Nov. 5	4.50
N Dark Orchid Queen. Large incurved orchid pink standard. Fine large deep orchid for September—early May under glass and for California cloth house. Very strong stem. Will fade badly at high temperatures.....	Nov. 10	4.00
D Laughter (NEW—Yoder Bros.). Intermediate light lavender pink semi-incurved disbud. Comparable to Bluechip for high temperature finishing. Tall growth habit. Performs reliably in both the standard and fast disbud programs the year 'round. This is the answer to a pink disbud for the summer greenhouse.....	Nov. 10	5.50
Lavender Queen. Lavender sport of Orchid Queen. Flowers more compact and color more intense than that of Dark Orchid Queen.....	Nov. 10	4.25
Masumi Pink. Large incurved, deep pink.....	Nov. 10	5.00
D Merriment. (NEW—Yoder Bros.). Large medium lavender pink decorative disbud. Fast, vigorous growing variety that will tolerate 56° for bud initiation. A worthy supplement to standards and fast disbuds. Equals the size of Thanksgiving Pink but more dependable during the winter and spring months.....	Nov. 10	5.50
Orchid Queen. Large semi-incurved for September-June.....	Nov. 10	4.50
Peggy Hoover. Spider. Light pink tube.....	Nov. 10	5.00
Phillip Kay. Large incurved lavender used on west coast.....	Nov. 10	4.50
Pink Fern Edwards. Large incurved lavender. September-November in greenhouse. Used in California.....	Nov. 10	4.50
Pink Pockett. Large incurved pink exhibition variety.....	Nov. 10	4.75

11-Week Varieties—Pinch August 5

D Calvert's Pink. Intermediate incurved. A very pleasing orchid pink suffused with salmon. Suggested for standard disbud crops November through January. Must be kept at 55° or lower after buds show—to prevent stalling.....	Nov. 17	4.50
Aristocrat. Large incurved. Deep lavender.....	Nov. 20	4.25
N Helen Frick. Intermediate incurved. Used somewhat for pots. Pleasing silvery pink color.....	Nov. 20	4.50
Rose Delight. Medium incurved deep rose.....	Nov. 20	4.25
Ed Seidewitz. Intermediate incurved. Standard and disbud November-February.....	Nov. 23	4.50
DN Thanksgiving Pink. Medium large orchid pink reflex. Good standard disbud October through January.....	Nov. 23	4.50



FRED YULE

Fine glowing orange bronze from Europe. Suggested as a standard or disbud spring and fall.



DELAWARE

Now widely known as the #1 bronze Mum for pot growing, Delaware is compact, spreading, large flowered, and in all respects an ideal pot Mum.

PINK STANDARDS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description	12-Week Varieties—Pinch August 10	Normal Flowering Date	Price 50 Only
Dark Pink Peter John. Large decorative. Color intensification of Pink Peter John.....		Nov. 25	\$4.50
Light Peter John. Medium reflexed. Lavender. See Yellow Peter John notes, page 15.....		Nov. 25	5.00
D Pink Peter John. Large light orchid pink decorative. Best size of Peter Johns. Standards. Fast crop programs. Intolerant of low temperature. 60° minimum for bud initiation; 55° for bud development.		Nov. 25	4.50

13-Week Varieties—Pinch August 15

Pink Mistletoe. Intermediate incurved. Finish cool.....	Dec. 5	4.75
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BRONZE AND RED STANDARDS

8-Week Varieties—Pinch July 10

D Amber Bright. Golden bronze. Outstanding as a disbud April 1-December 1. Makes a fine yellow at high temperatures.....	Oct. 15	4.50
DN Mayford's Triumph. Fine warm orange bronze. Good medium size standard. Outstanding as a disbud fall and spring. Color similar to Royal Bronze.....	Oct. 15	5.00

9-Week Varieties—Pinch July 16

Dalwin. Large light bronze spider.....	Oct. 25	5.00
DN Hilda Bergen. Intermediate incurved. Nice bronze disbud.....	Oct. 25	4.75
Glitters. Intermediate reflexed.....	Oct. 28	5.00
Red Glitters. Red sport of Glitters.....	Oct. 28	5.00
Antique. Copper bronze spider with strong stem. Used under glass September 15-November 15.	Nov. 1	5.00
Apricot Queen. Intermediate incurved. Used somewhat as pot variety.....	Nov. 1	5.00
DN Detroit News. Fine medium large bright bronze incurved. Most heavily used bronze standard. Excellent under glass April 1-June 15 and September 1 through November. Also popular as a disbud through same period and in some areas through the winter. Sets bud uniformly and ships exceptionally well. Only medium tall growth.....	Nov. 1	3.50
D Ivanhoe. Small warm bronze incurved standard. Grown September 15-November 15 as a standard and mid-September through May as a disbud.....	Nov. 1	4.50
Royal Bronze. Large orange bronze disbud. Because of its unusually warm and attractive color it is used some as a pot mum spring-fall (tall treatment). Fine as a cut disbud, too.	Nov. 1	4.25
DN Fred Yule (NEW). Intermediate glowing orange bronze incurved standard. Establishes a new color standard. Has vigor and stretch. Fine addition to the standard and fast disbud crops. Vegetative (hard to get bud set) during the winter months. Promising as a cloth house standard. See photo above.....	Nov. 3	5.50

BRONZE AND RED STANDARDS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description		10-Week Varieties—Pinch July 22		Normal Flowering Date	Price 50 Only
PDN Dk. Indianapolis Bronze.	Dark reddish bronze sport. Same flowering periods as Indianapolis Bronze.			Nov. 5	\$4.00
N Gena Harwood.	Spider. Bronze sport of Rayannante. Used extensively in California cloth house.			Nov. 5	4.75
Indianapolis Apricot (NEW).	Intermediate incurved. Warm apricot bronze especially when flowered during cool weather. Size slightly smaller, habit stronger than parent. Standard and short crops mid-September through mid-May. Tall procedure for pots same period.			Nov. 5	4.75
N Indianapolis Bronze.	Medium large incurved bronze. A good bronze during cooler months of the year for both cut flower (September-June) and as a disbud same period. Also used as pot plant same period.			Nov. 5	3.75
Indianapolis Golden Bronze.	Quilled; semi-incurved. Pleasing color.			Nov. 5	4.75
Luxon (NEW).	Large apricot bronze spider. Outstanding stem and flower quality.			Nov. 5	5.00
Mamoru.	Spider. Artistic dark apricot.			Nov. 5	5.00
Nomago.	Bronze spider.			Nov. 5	4.75
N Anaconda.	Large incurved. Deep coppery red for fall.			Nov. 8	4.50
P Bronze Calypso (NEW).	Large, rich orange-bronze, incurved and very short. Exclusively a pot plant variety. Single pinch. Best results are obtained with high temperature initiation and low temperature development. Flower size and form closely resembles the Indianapolis varieties. Medium treatment pot plant April-June and September-November.			Nov. 8	5.50
P Delaware.	Hands down the number one bronze pot mum. Fine compact free breaking pot plant habit and uniform bud setter. Flowers are large incurved type up to 4 inches disbudded. Will show some center when fully mature but still attractive. Will fade considerably at high temperatures, but still usable. Short treatment. See page 17.			Nov. 8	3.75
Bronze Orchid Queen.	Apricot buff sport.			Nov. 10	4.50
Copper Queen (NEW—Yoder Bros.).	Large copper bronze incurved sport of Orchid Queen. Larger flower and more vigorous than Bronze Orchid Queen. Standard mid-September to June			Nov. 10	5.25
Oakdale.	Intermediate incurved. Buff bronze.			Nov. 10	5.25
Mrs. Stahelin.	Intermediate incurved pot plant. Reddish bronze. Finish cool.			Nov. 10	5.00
N Garnet King.	Intermediate reflexed. Pot plant and cut flower November-January.			Nov. 13	4.50
N Mrs. Roy.	Medium large incurved maroon-bronze, buff reverse, especially desirable for the late summer-early fall greenhouse crop, and at normal date. It does lighten some in color in the heat, but remains a definitely salable color. Responds evenly and has never shown a center for us. Used also May-June.			Nov. 13	4.00
Waikiki.	Spider. Red bronze tube. Yellow tips. Standards.			Nov. 13	5.00

11-Week Varieties—Pinch August 5

Bolcombe's Perfection (NEW).	Large orange bronze standard of medium height.	Nov. 15	5.00
N Mrs. Eisenhower.	A vivid golden bronze spider. September 15-December 1.	Nov. 18	4.75
Bronze Frick.	Intermediate incurved.	Nov. 20	4.75
Calvert's Gold.	Intermediate semi-incurved, pleasing orange bronze. Form and non-fading color improve Apricot Queen. Standard and short crops mid-October through April. Medium procedure for pot plants in same period. At its best October through January—finished cool.	Nov. 20	4.50
Stanley Naydo.	Large incurved, bronze sport of Armistice Day.	Nov. 20	5.00

12-Week Varieties—Pinch August 10

Bronze Peter John.	Medium reflexed. Rosewood. See notes on Yellow Peter John, page 15.	Nov. 25	5.00
Gladys Pearson.	Intermediate incurved. Light buff bronze. Excellent. Much used for normal season and October 15-January 1.	Nov. 25	4.50
N Oak Leaf.	Intermediate incurved. Bronze. Fine dark bronze Gladys Pearson—especially for Thanksgiving.	Nov. 25	4.25
N Muto's Crimson.	Intermediate semi-incurved.	Dec. 1	4.75

13-Week Varieties—Pinch August 15

Bronze Mistletoe.	Intermediate incurved. Finish cool.	Dec. 5	5.00
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Pompons

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

A Complete List of Garden (Hardy) Varieties on Page 41

WHITE

Variety and Description	6-Week Varieties	Normal Flowering Date	Price 50 Only
P Crystal Maid. Cream decorative pompon. Low growing plant that is well suited for borders. Responds well to spring pot plant culture. Also very good for 3 in. pot blooming.....		Sept. 12	\$5.00
P Calcite. Cream white decorative. Responds to off-season blooming. Good spring garden pot plant.		Sept. 15	4.00
P White Bounty. Cream white button pompon. Responds to off-season blooming. Good spring pot plant.		Sept. 15	4.25
P Ostosa. Intermediate paper-white pompon. Top-notch new white to go with your spring garden Mums in pots.....		Sept. 25	4.50
P Shalimar (H). Large white decorative. Flower produced on medium height growth. Good Mother's Day and later pot. Better disbudded.....		Sept. 25	4.50
P Pepita. Small button pompon. Good spring pot plant variety.....		Sept. 28	4.50
PN Chris. Columbus. It's a pleasing cream colored medium sized decorative. Shows up well at normal season as a garden variety, too. "Chris" and "Yellow Chris" are the number one varieties for flowering in spring in pots. See page 1.....		Oct. 1	4.00

7-Week Varieties

N Horizon. "The" early garden white for late summer. Also early fall cut flower use. It's pure white, and a more formal type flower than Chris. Columbus. Nice as a garden variety at normal season, too.....	Oct. 5	4.50
P Lyric. Small single. Good substance in petals. Very attractive as spring pot plant. Very good also as 3 inch pot plant.....	Oct. 5	5.00
P Marshmallow. Heavily petalled pure white daisy. Foreground garden variety and Mother's Day pot plant.....	Oct. 5	5.25
P Benora (NEW—DePetris). Intermediate pompon. White with ivory centers. Polished foliage, rigid stems, and dwarf spreading growth habit. Spring and fall pots, using medium treatment or 2nd delayed pinch method. A real improvement over Chris. Columbus for durability. Prolific bloomer, too.....	Oct. 8	5.50
Classic. Another important garden variety for cut flowers. It's smaller flowered than Horizon, and of semi-formal flower type. Fine through late summer and up to normal date.....	Oct. 10	4.75
P Maestro. Medium cream pompon. Produced on very low growing plants. Responds to off-season blooming. Recommended as spring garden pots.....	Oct. 10	4.50
P Silverplate. A white decorative. Vigorous and productive outdoor cut flower and spring pot plant variety.	Oct. 12	4.50

8-Week Varieties—Pinch July 10

N Blizzard. Will set buds at 55°. Durable and productive. Fine spray pomps May to Oct., good in cloth house. Earlier, some larger and more productive than Pinocchio.....	Oct. 15	4.25
N Calif. White Daisy (Kimoto's White). Intermediate white single for the very early cloth house.	Oct. 15	4.75
PD Gardenia. Large white decorative. Excellent pot variety especially March to Oct., although if finished warm to avoid pinching, it is good in winter. Good flower size if disbudded. Medium treatment. See next page.....	Oct. 15	4.50
Irene. Small pompon.....	Oct. 15	5.00
Limelight. Large ivory white pompon. Outdoor cut flower variety. Background garden plantings.	Oct. 15	5.00

PRICES FOR MORE THAN 50 OF A VARIETY ON ONE SHIPMENT

Note carefully instructions for ordering on page 9. No orders for less than 50 rooted cuttings of a variety accepted. Minimum total order, 500 cuttings.

50 only	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50
100-250 per 100.....	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25
300-450 per 100.....	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00
500-950 per 100.....	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75
1000-up per 100.....	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50

WHITE POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description 8-Week Varieties—Continued

Variety and Description	Normal Flowering Date	Price 50 Only
Norona. A good medium sized white pompon. For the early cloth house—from early August on. Nice at normal date.....	Oct. 15	\$4.75
P Pilgrim. Clear white, a very good garden variety for spring pots. Excellent for secondary border.	Oct. 15	5.25
Silver Ball. Large pompon. White.....	Oct. 15	4.00
Creampuff. Intermediate cream white single.....	Oct. 20	5.25
Minong. Small pompon.....	Oct. 20	5.25
Moondrift. Intermediate ivory single. Tolerates 56°.....	Oct. 20	5.00
N Pristine. A pure white medium large formal pompon. It's excellent in the greenhouse from late April thru early June and again in early Fall. Heavily used in the cloth house and in the winter crop in Florida.....	Oct. 20	3.75
Shibuya White (NEW—Nishimoto). Intermediate white daisy. West coast variety. Larger than Calif. White Daisy.....	Oct. 20	5.25
N Silvertone. Intermediate white daisy. Similar in habit to Reward and Buckskin. August and September cloth house and May through October in the greenhouse. Will set buds at 54°.	Oct. 24	4.75

9-Week Varieties—Pinch July 16

Cottontop. Small pompon.....	Oct. 25	5.00
N Keepsake. Number one among the 8 and 9 week white pompons. It's a white pompon with slight cream cast—and about the size of Gold Coast. We find it excellent in the greenhouse from early May right through the summer and up to its normal date, although Whitetop gives it hard competition in May-June and September-November. It's fine in the cloth house till cool weather. Tends to pink at low temperature. Very nice at normal season.	Oct. 25	3.75
N Pinocchio. A pure white, tiny button type flower. It provides welcome variety from the ever-present "pomp." It's fine from mid-May to normal season under glass, and from August through mid-September in the cloth house. Especially popular for June and September weddings.	Oct. 25	4.25
Popcorn. Intermediate pompon. See notes on White Popcorn, opposite page.....	Oct. 25	4.25
P Monty. See below. Large clear white decorative. Good new white pot variety. Monty is compact, medium large flowered, pure white. Petals are somewhat quilled. Tends to flower unevenly in winter but looks good from late April through December. Medium treatment.....	Oct. 25	4.25
Shooting Star. Intermediate single.....	Oct. 25	5.25



GARDENIA

Released last year, Gardenia has proven to be uniformly compact, and even flowering wherever it was flowered. An excellent pot Mum.



MONTY

Compact medium large flowered pure white pot Mum. Some tendency to uneven flowering in winter, but nice from spring through fall.

WHITE POMPONS

Variety and Description

9-Week Varieties—Continued

Silver Bow (NEW—U. of Mont.). Large white formal disbud pompon. Responsive and productive in the fast disbud programs. April-November. Displays a high degree of tolerance to summer greenhouse temperatures. A marked color and growth improvement over White Doty.

Normal Flowering Date	Price 50 Only
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Oct. 25	\$5.50
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White Keepsake. Intermediate ivory. Selection from Keepsake. Like White Popcorn, it is devoid of pink tinges at low temperatures.....

Oct. 25	4.50
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White Popcorn. Medium large pomp. Both the Popcorn varieties are very heavy producers—up to 1 1/2 bunches per foot. Fine for greenhouse early June through September, also cloth house, and at normal date. White Popcorn has a cream cast but will not pink at low temperatures.....

Oct. 25	4.25
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Songster. A pure white medium sized formal. Has a rather limited season in our experience, at its best from late August till normal season in the greenhouse. Stands heat, in fact needs it. Not recommended for cloth house. Fine at normal date.....

Oct. 25	4.25
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Vesta. A glistening pure white button. For summer and early fall. Fine at normal season and in cloth house.....

Oct. 25	4.50
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Arcadia. Intermediate pompon.....

Oct. 28	4.75
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Memento (NEW—Yoder Bros.). Intermediate chalk white single with green discs and durable petals that retain their original form into maturity. Reliable cloth house and greenhouse variety. Tolerates both low and high temperatures for bud development. This single embodies the versatility of Silvertone with a form and clarity of color superior to Halo.....

Oct. 30	5.50
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Alaska. Intermediate white anemone. Somewhat like Shasta but perhaps more daisy like. Pure white, better producer than Shasta, and holds its cushion better in hot weather. Dis-spray (p. 9) helps. Best in greenhouse early May-early November and in cloth house. Grown somewhat as disbud and pot variety, although rather tall. See illustration at right.

Nov. 1	4.00
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Halo. A pure white daisy. Exceptionally good high temperature performance. Halo and the very attractive Cream Halo are at their best from mid-May through September under glass.....

Nov. 1	4.25
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Sea Gull. Intermediate pompon.....

Nov. 1	4.50
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Silver Cloud. Intermediate white single. A good producer April through October with use restricted to the greenhouse.

Nov. 1	4.75
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Venona. Large white daisy. Suitable for sprays or disbuds, has a prominent large disc.....

Nov. 1	4.50
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White Doty. Large pompon. Used as disbud.

Nov. 1	4.50
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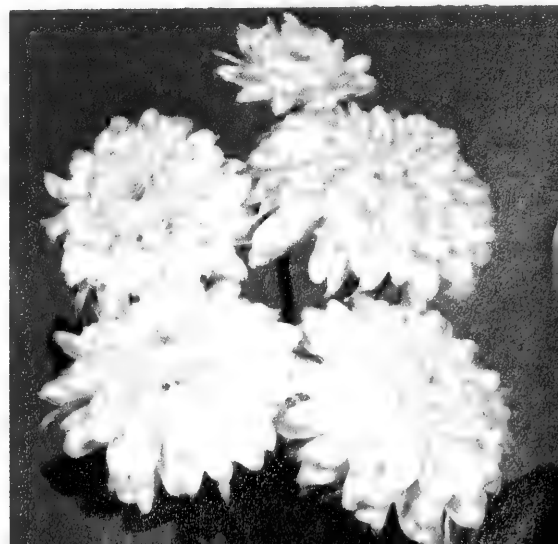


ICEBERG (See page 22). Outstanding Pomp. Actually about 50% larger flower than Whitetop.



ALASKA . Somewhat better producer than Shasta

WHITETOP (See page 22). Fine greenhouse and cloth house white.



WHITE POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description		10-Week Varieties—Pinch July 22	Normal Flowering Date	Price 50 Only
Encore. A snow-white medium large pompon. It's at its best in the cloth house from mid-August through September. It's excellent from early September up to its normal date under glass. It must have 60° to set bud. Very good production. Pinks at low temperature.			Nov. 5	\$4.00
Freedom. Intermediate pure white single. Fine spray and substance. Best for greenhouse (May-Nov.), cloth house (Sept.-Oct.)			Nov. 5	4.75
DN Iceberg. Large chalk white pompon. Here's one we believe is on the way up fast. From our trials so far, it promises to be one of the top 9-10 week white pomps for the greenhouse spring-fall. It was quite outstanding in the cloth house both north and Florida. It is one of the top white disbuds if not the best. Iceberg sets buds at marginal temperatures. Stores best, produces quite well. It's a tall, vigorous grower. See page 21			Nov. 5	4.00
Madonna. A medium large clear white pompon. Needs ample heat and time to develop properly. Best mid-May through September under glass or under cloth August-Sept. Takes verticillium easily. Pinks at low temperatures.			Nov. 5	4.25
D White Anemone. Large anemone. Good disbud.			Nov. 5	4.75
White Mensa. Large single.			Nov. 5	5.00
D Whitehouse (NEW—Yoder Bros.). Intermediate white anemone. Breaks vigorously and thrives best with high temperature. Very uniform and responsive. Recommended for pots May through November. Use medium treatment. A summer Little America.			Nov. 5	5.50
N Whitetop. Fine glistening white medium large decorative pomp. In just three short years this unusually fine pure white pomp has risen to the #1 spot in the white pomps. It is excellent in the greenhouse mid-April to November (except during hot weather). Whitetop is very heavily used in the cloth house both up North and in Florida. Ships well, and is a very good producer. Sets bud even at somewhat marginal temperatures. Needs full recommended period from plant to flower. See page 21			Nov. 5	3.50
Moonglow. Intermediate pompon. Needs 60° to set bud.			Nov. 8	4.75
Rev. Bushnell. Intermediate ivory pompon.			Nov. 8	5.00
Dynamo. White pompon. Very high quality cloth house white pompon. Excellent at normal season. Needs 60° for bud set. 55° to develop			Nov. 10	4.75
D Ice Cream (NEW—Yoder Bros.). Intermediate decorative with 3-4 inch diameter. White to cream depending upon temperature. Very reliable. Extraordinarily vigorous, having a wide range of temperature tolerance for bud initiation. A valuable addition to the fast disbuds from April through December. As large a disbud as Iceberg.			Nov. 10	5.50
N Illini Igloo. Intermediate ivory-white pomp. Igloo is a tight rather small formal pomp. It's durable—a good shipper. It's at its best under high temperatures and light, but will set bud and flower at 54°. Used in greenhouse from April 1 through November, all season under cloth. At its best July-October under glass.			Nov. 10	4.00
PN Little America. A pure white anemone, medium to large. Although at its best through only a rather limited period, it is beautiful—and an outstanding producer. We get best results in the greenhouse from mid-September through the normal date—it is fine grown normally. It is used in the late cloth house. Very nice in pots, it finished especially well in winter and spring. Needs disbudding to bring out quality. Makes a lot of show as a 6 inch pot for Christmas or Easter.			Nov. 10	4.00
Nagana. Intermediate white single.			Nov. 10	5.00
PN Pacesetter. Pure white in color, good pot plant habit. Daisies generally aren't much grown in pots, but this one makes such an exceptional showing that we have had good results with it. It's medium large, actually semi-double, fully petalled, and a hard flower with good substance. It buds easily, and does well right around the year. Also fine as spray pomp spring and fall and in cloth house. Give it tall treatment as a pot plant.			Nov. 10	4.25
DN Shasta. A white anemone with creamy-yellow center. The fact that Shasta is one of the top two white pompons in cutting sales is a tip-off to its qualities. It is excellent in the greenhouse from late April through its normal flowering date. It is equally fine in the cloth houses from early August through early October. Although not particularly recommended, it will flower satisfactorily through the winter in the northern greenhouse at 55° temperatures and is used that way. It is a prompt bud setter even at marginal temperatures, stands extreme heat very well, but tends to lose its anemone crest. It is susceptible to verticillium. In our experience it is satisfactory for local shipping.			Nov. 10	3.25
Vesper. Intermediate pompon.			Nov. 10	4.75
PN Illini Snowdrift. A pure white feathery novelty pompon. We find it good from early April through its normal date in November. Best quality comes from May 15 to July 1 and again in September-October. Nice in pots, especially in spring. Flowers dye well. A novelty not to be grown in large quantities, but very attractive. Nice for Christmas on a 12-10 interruption.				
Matchless. Intermediate pompon.			Nov. 12	4.00
White Memorial. Pure white sport. Pinks at low temperature.			Nov. 12	5.00
			Nov. 12	5.00

WHITE POMPONS

Variety and Description 11-Week Varieties—Pinch August 5

Variety and Description	Normal Flowering Date	Price 50 Only
Eskimo. Clear white daisy.....	Nov. 15	\$5.00
N Sculpture. A fine large ivory white daisy. We find it best in May and again from mid-September through its normal date.....	Nov. 15	4.25
Snowflurry. A small white button pompon. Larger than Pinocchio. Very productive. Needs 60° to set bud.....	Nov. 15	4.75
White Arbutus (NEW—Neal). Pure white sport of Arbutus, a very good 11-week small white pompon.	Nov. 15	5.00
D White Freida. Large white anemone. Good disbudded or sprays.....	Nov. 15	3.50
D White Norma. Large anemone; white rays, yellow cushion.....	Nov. 15	4.75
White Taffeta. Pure white sport of Taffeta. Fine in greenhouse mid-March to May and September-November. Excellent under cloth.....	Nov. 15	4.50
D Illini Starflower. Semi-anemone form. A spoon type novelty in white for retail growers. Disbud or spray.....	Nov. 18	5.00
N Highbrow. A medium large decorative ivory with deep cream eye. Very nice in the greenhouse from September through its normal date. Excellent in the cloth house mid-September through mid-October. Very good producer.....	Nov. 20	4.00
DN Long Island Beauty. Large anemone. Disbud or disspray.....	Nov. 20	4.25
D Nevada. Intermediate anemone, chartreuse cushion. Disbud.....	Nov. 20	4.50
Priscilla. An ivory white formal pompon. Grown mainly at its normal season.....	Nov. 20	4.25
Seafoam. Intermediate pompon.....	Nov. 20	4.75
Crystal Beauty. Intermediate pompon.....	Nov. 20	4.75
Illini Bountiful. Intermediate decorative. Very productive.....	Nov. 23	5.00
N Paramount. A medium large ivory white formal pomp. Heavily used in greenhouse flowering from October through December—or even all winter in near South, Colorado, etc. Fair producer, vigorous dependable grower, and a top quality flower.....	Nov. 23	4.00
Lolita. Excellent. Pure white daisy.....	Nov. 23	4.50
DN Belray. A fine, long stemmed pure white pompon. In the greenhouse it's at its best through March-April, but must be cooled as it flowers to develop real quality. Very nice again September 15 to normal date. Under cloth it is much used from about September 25 till late October when it is strikingly fine. Removal of center bud helps. A good producer. Will set bud at 56°. Good disbud.....	Nov. 24	3.75
Carrara. Intermediate pure white decorative. A short variety that tolerates low temperatures. Easy to grow. Sets bud at 56°. Short grower.....	Nov. 24	4.50

12-Week Varieties—Pinch Aug. 10

Illini Peace. A productive white anemone for Thanksgiving.....	Nov. 25	4.75
Silvercrest. Small white formal pompon. Markedly improves the appearance and quality of Snowcrest. For flowering November through March, and late cloth house.....	Nov. 25	4.50
DN White Lady. White sport of Beautiful Lady. Disbud.....	Nov. 25	4.75
White Yuletide. Medium pompon, white.....	Nov. 25	3.50
DN White Valencia. Large single. Disspray and disbud. Well grown (slowly) and properly disbudded, nothing can be more striking than these Valencias. They're giant, showy daisies, reaching 5 to 6 inches, and available this year in seven different colors. They are at their best flowered at their normal season or November 15-January 1, given at least as much time as prescribed. We have had good success with them between mid-March and May 1 under glass, but again they must not be hurried—kept at 60° till buds set, then finished cool. They need a good light bench, generous space.....	Nov. 28	4.50
Cordova. Intermediate pompon, best at normal season.....	Nov. 30	4.50
Fortune. A formal white pompon. Outstanding for November and December and for late cloth house. Used in Florida.....	Dec. 1	4.00
Monarch. Ivory white large decorative.....	Dec. 1	4.75
Illini Glacier. Large anemone.....	Dec. 1	5.00

13-Week Varieties—Pinch Aug. 15

N Acclaim. Medium large formal white with slight cream cast. A top-notch winter white. It is excellent under glass from December 1 through March (very best March 1-April 15). Sets buds well even at marginal temperatures, and will flower well even if held to 60° till cut. If given ample time (plant to flower) it will produce well and form good sprays. Fine at normal season.....	Dec. 5	3.50
Cameo. Intermediate decorative. Best at natural season.....	Dec. 5	4.50
Cotillion. Intermediate semi-formal pompon. Needs 60° to set bud.....	Dec. 5	4.75
Spangles. Small white pompon. Best described as a late white Sunnyside.....	Dec. 5	4.75
Swan. Large anemone. Disbud. Finish cool.....	Dec. 5	4.75
DN White Enchantress. Large white anemone. Good in sprays or disbudded; very good for extending the season from December through March, responds sharply.....	Dec. 5	4.50

WHITE POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description	13-Week Varieties—Continued	Normal Flowering Date	Price 50 Only
N Orway. Large white single. An improvement over Yukon in flower quality and growth habit.		Dec. 8	\$5.00
Snowdrop. White button pompon. Uniform growth and good production. Pinks at low temperatures.		Dec. 8	4.75
White Snowdrop. Pure white sport of Snowdrop. No pinking.		Dec. 8	5.00
Illini Starlet. Intermediate white anemone. Improves Garza in form, growth and clarity of color.		Dec. 10	4.50
D Imp. White Supreme. Large anemone. Good disbud. Finish cool.		Dec. 10	4.75
Snow Queen. Medium large formal pompon of purest white.		Dec. 10	4.75
Snowflake. Intermediate, clear white pompon. Best at natural season.		Dec. 10	5.25
Yukon. Intermediate single. Sets buds at 56°.		Dec. 10	4.50
Dolomite. Intermediate pompon. Smaller and better than Carrara. Sets buds at 56°.		Dec. 13	5.25
Satellite. Intermediate cream white pompon. Vigorous Silversmith habit. Very productive.		Dec. 13	4.50
N Snowcrest. Medium small creamy white pompon. Reliable pomp for December-March greenhouse crop. Finishes well without cooling.		Dec. 13	4.25
14-Week Varieties—Pinch Aug. 23			
N Garza. Intermediate anemone.		Dec. 15	4.25
N Silversmith. Glistening white showy decorative. Definitely number one white pomp for the winter greenhouse crop. Will set buds at 56° and must be kept cool after buds show. See page 54. Given correct temperatures, will produce up to one bunch per foot in winter. Used late December-March 1. Remove center bud. Fine at natural season.		Dec. 15	3.50
N Snowcap. Large formal white pompon. Much used for the December 20-March 1 crop where it is not possible to drop temperature as the crop flowers. Needs 60° to set buds. Will pink if flowered at low temperatures.		Dec. 15	4.00
Trenton. Good form and production. Best for normal season.		Dec. 15	4.75
White Riviera. Intermediate decorative. Ivory.		Dec. 15	5.25
Heirloom. Intermediate decorative.		Dec. 20	4.75
N Illini Alba (NEW—U. of Ill.) Large single, pure white; does not pink at low temperatures, a good Christmas white.		Dec. 20	5.50
Wedding Bells. White formal pompon.		Dec. 20	4.75
White Kramer. Large decorative pompon. A west coast variety used very extensively in California. Good shipper and producer.		Dec. 20	5.00
15-Week Varieties—Pinch Sept. 1			
Muto's White. Large white pompon.		Dec. 25	3.50
N Revelation. A medium large decorative white. Fine for the late December-January normal crop. Sets buds at relatively low temperatures, and can be held easily for the early January market without lights. Must be kept well below 60° (better at 50°) after color shows or it will stall.		Dec. 25	4.00
N Snow. Medium large pompon for late normal flowering. Needs 60° to set. Although still much used, the trend is toward Revelation and Silversmith, mainly because they set buds at somewhat lower temperatures.		Dec. 25	4.25
Illini Cascade. Large decorative, clear white. Improves the color, size, vigor, and response of Illini Snowbound. Finishes well at high (60°) or low (50°) temperatures. Good winter pomp or disbud.		Jan. 5	4.75
Illini Snowbound. Large formal white decorative. Cream center. Must have 60° to set buds and 50° to finish.		Jan. 5	4.50
Talmeda. Intermediate white pompon. Improves Revelation. Just about the latest white pompon. Good form and substance.		Jan. 5	4.50

PRICES FOR MORE THAN 50 OF A VARIETY ON ONE SHIPMENT

Note carefully instructions for ordering on page 9. No orders for less than 50 rooted cuttings of a variety accepted. Minimum total order, 500 cuttings.

	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50
50 only	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50
100-250 per 100	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25
300-450 per 100	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00
500-950 per 100	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75
1000-up per 100	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50

YELLOW POMPONS

A Complete List of Garden (Hardy) Varieties on Page 42

Variety and Description	6-Week Varieties	Normal Flowering Date	Price 50 Only
P Pomponette. Medium sized orange pompon. Low growing. Responds for off-season blooming. Good spring garden pot plant.....		Sept. 15	\$4.00
P Early Yellow. Small button, secondary border, deep lemon.....		Sept. 15	4.00
PD Ming. Medium large pompon, golden orange yellow. Responds well for spring pot plants.....		Oct. 1	5.25
P Sept. Sunshine. Medium single. Very prolific with blooms. Responds well for spring pot plants. Very showy, bright lemon.....		Sept. 20	4.00
P Honeycomb. Honey yellow pompon, good form. Responds well for spring garden pot plants.....		Oct. 1	5.00
PN Yel. Chris. Columbus. The number one variety for May flowering in 3 in. pots. Will set buds without shade or lights in May. See page 1.....		Oct. 1	4.00
P Moonlight. Intermediate sulfur yellow pompon. Short compact growth habit. For borders and pot plants.....		Oct. 1	4.50

7-Week Varieties

P Chiquita. Deep lemon, button.....	Oct. 5	4.50
P Astoria. Intermediate pompon. Bright lemon-yellow. Free flowering and responsive. More prolific than either Yel. Chris. Columbus, or Moonlight, when grown as a spring pot single or 2nd delayed pinch using the medium treatment. An early "foreground" garden variety....	Oct. 5	5.50
Chas. Nye. Intermediate decorative.....	Oct. 5	4.75
P Garland. Small lemon yellow single. Responds well for spring garden pot plants.....	Oct. 5	4.50
PD Mrs. Rotan. Large decorative, deep chrome.....	Oct. 5	4.50
Polaris. An early golden buff daisy. An Arctic hybrid. Background garden variety and October cut flower.....	Oct. 5	5.00
P Yel. Spoon. Intermediate yellow spoon single. Well suited for garden and pot culture.....	Oct. 5	4.75
P Spode. Large bright lemon incurved. Short growing garden variety suitable for growing as disbud. Responds well for spring pot plants.....	Oct. 8	5.00
P Sunstone. A cream yellow spider or spoon type flower. A novel and attractive background garden flower. Spring pot plant.....	Oct. 8	4.50
N Bright Forecast. Very formal yellow pompon. Outstanding flower quality. A variety for cutting.	Oct. 10	4.50
N Goldrush. Dark yellow daisy. Cut flower variety.....	Oct. 10	5.00
Treasure. Small deep yellow pompon. Vigorous, upright habit. Fine cut flower growth. Outdoor cut flower and natural greenhouse programs. Cloth house.....	Oct. 10	4.75
P Yel. Blanket. Small yellow button. Responds for spring garden pot plants.....	Oct. 10	4.00
D Lemonade. Cream yellow decorative. Early cut flower variety. Outstanding for spring pots because of its color. Pots.....	Oct. 12	4.50
Sweepstake. Small formal yellow pompon. Dwarf and compact.....	Oct. 12	5.00

8-Week Varieties—Pinch July 10

PD Arlora. Large (3½ in.) incurved yellow. Here's a top-notch to go with your spring garden mums in pots. It's compact in habit, has pleasing soft yellow color. Also very nice as a fall pot plant, and as a cut disbud.....	Oct. 15	5.00
Sarasota. Bright lemon yellow pompon. Produced on good stems with excellent spray formation; for cutting, either under glass or outside throughout the South, also good for early cloth house	Oct. 15	5.00
Yellow Irene. Small button pompon, light lemon.....	Oct. 15	4.00
Early Imamura Yellow (NEW—Nishimoto). True yellow sport of Imamura Yellow. Five to six days earlier than parent variety, also a shade lighter in color. An early west coast cloth house variety	Oct. 20	5.25
Rodell Improved. Small pompon, light lemon.....	Oct. 20	4.00

9-Week Varieties—Pinch July 16

Early Yellow Daisy (NEW—Nishimoto). Intermediate yellow single. Selection from Calif. Yellow Daisy that will mature 7 to 10 days earlier. A west coast cloth house variety.....	Oct. 25	5.25
Goldfinch. Small golden yellow button pompon.....	Oct. 25	4.75
Ordalia. Deep golden yellow, semi-incurved decorative.....	Oct. 25	5.00
D Starlight. Large yellow daisy. Recommended spring and fall in the greenhouse. Natural or dispray, or disbud.....	Oct. 25	4.75
DN Golden Herald. A large loosely petalled decorative. Deep strong yellow color. It performs well from early June through its normal season, good during hot weather. Does well in the cloth house. A good producer. Good disbud.....	Oct. 25	4.00
N Gold Coast. Bright yellow formal pompon of medium size. The number one yellow pompon for the greenhouse (May 1-November 1) and for the August-September cloth house. It sets bud easily, produces well, rates about fair on hot weather performance (flowers stick and it produces too many flowers per spray). It's excellent at its normal season.....	Oct. 25	3.50
Yellow Dot. Intermediate pompon, golden bronze edge.....	Oct. 25	4.75

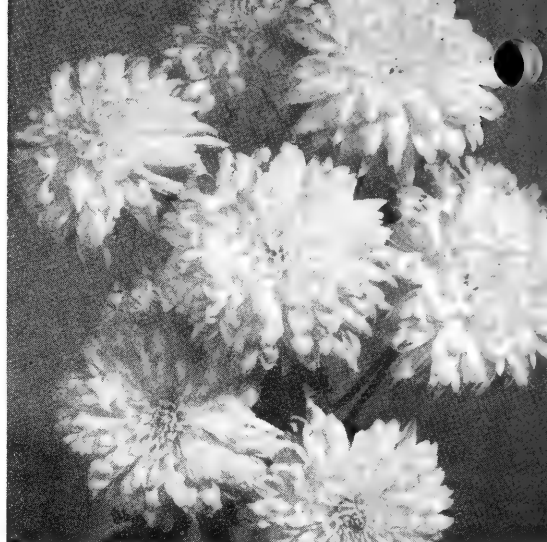


←STATESMAN

Very promising new deep yellow button pomp. Stands high summer temperatures well. Good spray formation and hard durable flower.

HEYDAY→

Looks like this one might well beat Yellow Beauregard. Quite productive and fine large flower. Sprays open and graceful at all seasons.



YELLOW POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

9-Week Varieties—Continued

Cream Dot. Sport of Pink Dot. Intermediate cream yellow pompon, pink eye.....	Oct. 25	\$5.00
Imamura Yellow. Intermediate yellow daisy. For early cloth house.....	Oct. 25	5.25
Red Dot. Bright yellow pompon with bronze-red centers. For September through October cloth house and normal, March through May in spring.....	Oct. 25	4.25
Happiness (NEW—Yoder Bros.). Large single. Golden yellow, having broad flat ray petals. Normally outproduces Sauterne and is noticeably more reliable in high temperature summer greenhouses than either Aztec or the Halos. In the greenhouse from May through October, cloth house July through October. This variety is a combination of beauty, productivity and versatility.....	Oct. 28	5.50
Sunup. Small deep yellow pompon. Under high temperature and high light intensity, shows up better than Gold Coast. Used July through September in greenhouse and under cloth.	Oct. 28	4.25
Yellow Arcadia. Intermediate pompon.....	Oct. 28	4.75
D Gondola. Intermediate yellow daisy. Disbud.....	Oct. 30	5.00
N Sauterne. Medium large, bright yellow daisy. Fine in greenhouse May-October, under cloth, and at natural season under glass.....	Oct. 30	4.25
Cream Halo. Excellent cream colored sport of Halo.....	Nov. 1	5.25
Dandy (NEW—Yoder Bros.). Intermediate pompon. Yellow. The most temperature tolerant among the 9-week yellow pompons in the catalog. Will initiate and develop buds at 56°. Develops better than Sunup at high temperatures. Production of Gold Coast. Greenhouse from May through October, cloth house from July through October. Adaptive to a wide range of environments. It's a "Dandy".....	Nov. 1	5.50
Schn. Yel. Daisy. Intermediate single.....	Nov. 1	4.50
N Starbright. Fine large golden yellow daisy. Good in greenhouse, especially from July 1 till its normal date	Nov. 1	4.50
Statesman (NEW—Yoder Bros.). Small intense yellow pompon produced in abundance on well-formed sprays. Valuable summer greenhouse variety because of its unusual tolerance to high temperatures. Greenhouse May through October, cloth house mid-July through October. A marked improvement over Sunup. Relatively more productive. A more formal flower that will not stick. See above.....	Nov. 1	5.50
Yellow Daisy. Intermediate single.....	Nov. 1	4.75
D Yellow Doty. Large pompon. Disbud.....	Nov. 1	5.00
Yellow Cassandra. Intermediate pompon.....	Nov. 1	4.75
Yellow Halo. Sport of Halo. Intermediate single, deep yellow. Recommended for April 15 through November 1 greenhouse culture.....	Nov. 1	4.50
Yellow Sea Gull. Intermediate pompon.....	Nov. 1	4.75
P Sunray. Attractive yellow anemone. A "sure crop" variety used for cloth house and early greenhouse crops, and for normal flowering. Nice in pots April-October. Short treatment.	Nov. 3	4.25
Honeymoon. Large yellow daisy. Recommended May to November in the greenhouse, and August and September in the cloth house.....	Nov. 4	4.75

10-Week Varieties—Pinch July 22

N Aztec. Medium large deep yellow daisy. In our experience, Aztec is clearly number one of the 9-10 week yellow daisies. It's tops in the greenhouse mid-April through October and in the cloth house.....	Nov. 5	4.25
Barcarole. Intermediate pompon.....	Nov. 5	4.25

YELLOW POMPONS

Variety and Description

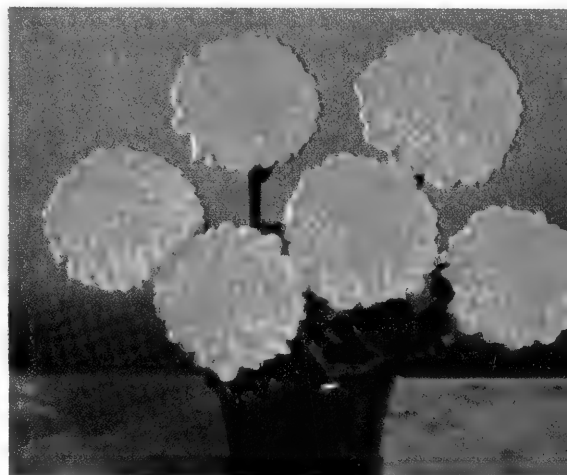
10-Week Varieties—Pinch July 22

	Normal Flowering Date	Price 50 Only
Brigadoon. Heavily petalled yellow daisy.	Nov. 5	\$4.75
D Crescendo. A beautiful large lemon yellow pompon. Tall grower. Outstanding for the high temperature period under glass and cloth. Should be watched for height on normal crops where head room is limited—don't plant before mid-July. A good producer, and at its very best in the greenhouse July 1-September 15. Shows bronze cast at low temperatures.	Nov. 5	4.00
Constellation. Intermediate decorative. Excellent at normal season. Short grower.	Nov. 5	4.50
Golden Mensa. Large single.	Nov. 5	5.00
N Mary Hall. Medium large formal pompon. Used considerably May-October under glass and in cloth house. Stands heat. Gets bronzy at low temperatures.	Nov. 5	4.00
Nuggets. Small pompon. Productive.	Nov. 5	5.00
Pixie. Small lemon pompon.	Nov. 5	5.00
N Yellow Beauregard. Intermediate pompon. Medium large golden yellow pompon. Sport of Beauregard has its many good qualities. Best in greenhouse May-November, especially at warmer temperatures. Fine in cloth house. Removal of center bud helps overcome tendency to tight spray. See illustration at right.	Nov. 5	4.00
Yellowtop (NEW—Schramm). Bright lemon yellow sport from Whitetop. Same habit and vigor. Achieves maximum value in cloth house August through October, greenhouse April through November.	Nov. 5	5.50
D Luxury (NEW). Large decorative pompon and disbud. A large attractive golden amber; flowers clear yellow at high temperatures. At its best as a disbud in summer but good from May through October. Responsive. Nice also as a spray pompon May through October. Disspray procedure helps it. Good in cloth house August to mid-September.	Nov. 8	4.75
Calif. Yellow Mensa. Intermediate yellow single.	Nov. 10	5.25
D Cream Shasta. Beautiful color addition to the Shasta group. Sprays, cloth house, disbuds.	Nov. 10	4.50
DN Yellow Shasta. Very attractive lemon yellow anemone. For spring through normal season in the greenhouse, and for the cloth house. It's one of the top two yellow pompoms. For more details see Shasta, page 22.	Nov. 10	3.50
Heyday (NEW—Yoder Bros.). Intermediate bright yellow pompon. Will initiate and develop its buds well at 56°. Improves the flower size and productiveness of Yellow Beauregard. Characterized by open terminal sprays at any time of the year when it can be grown. Recommended for greenhouse April through June, and mid-September through November, cloth house August through October. See opposite page.	Nov. 10	5.50



JEALOUSY

Heavy producing, very attractive bright yellow pomp with green eye. Fine in the greenhouse spring and fall and excellent under cloth.

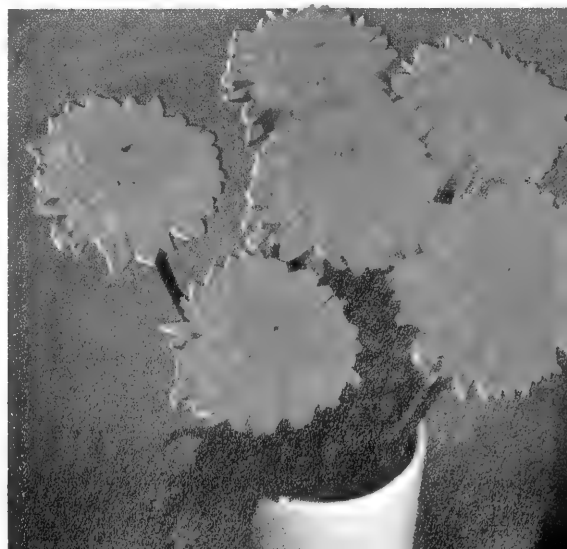


YELLOW IGLOO

Has same reliable bud-setting habits of its parent. Excellent in the greenhouse April through November and also under cloth.

YELLOW BEAUREGARD

Fine clear golden yellow at all temperatures. Same reliable bud-set and production as its parent, Beauregard. Especially fine for mid-summer greenhouse crop.



YELLOW POMPONS

Variety and Description 10-Week Varieties—Continued

Variety and Description	Normal Flowering Date	Price 50 Only
Illini Gold Cup. Large pompon, buttercup yellow.....	Nov. 10	\$4.00
Illini Petite. Small, hard button pompon. Orange-yellow.....	Nov. 10	5.25
Jealousy. Small pompon. Intense yellow, bright green eye. Free blooming and reliable. Good in the greenhouse April through June and early September through November. Develops green bracts under extreme heat. Fine under cloth August through September. See page 27.	Nov. 10	4.25
Yellow Igloo. Small pompon, lemon yellow. Sport of Illini Igloo. Has same dependable bud setting habits and general reliability. Fine in the greenhouse early April to mid-November, and under cloth mid-July to mid-October. Goes well into May in Florida without black cloth. See page 27.....	Nov. 10	4.25
Yellow Nagona. Medium single, heavy petal, light lemon.....	Nov. 10	5.00
P Yellow Pacesetter (NEW—Herrick). Lemon yellow sport from Pacesetter. Shapes up well in pots with tall treatment for October through mid-July. Spray programs: greenhouse late April through June; late September through mid-November. Cloth house August through October	Nov. 10	5.50
Thorobred. Large yellow daisy.....	Nov. 10	4.75

11-Week Varieties—Pinch Aug. 5

Cheerio. Intermediate anemone. Intense golden yellow. Spray programs October through November	Nov. 15	5.25
N Forty-Niner. An exceptionally fine, golden yellow pompon. It is used extensively in the cloth house from early September on, and is good also under glass from October 1-December 1 in our experience. Especially recommended for the late cloth house season. Also needs full 60° for bud set.....	Nov. 15	3.50
Gold Ball. Intermediate pompon. Golden yellow. Temperature tolerance improves Golden Chord and Forty-Niner. Hard, durable. Size of Corsair. Outstanding in cloth house September through mid-October. Spray programs March through May and September through mid-November. Valuable supplement to Forty-Niner.....	Nov. 15	4.50
N Golden Chord. Very showy golden yellow pompon. It makes an outstanding crop when well done, but in our experience is only at its best for a rather limited period—October 1 through December in the greenhouse. Needs 60° to set buds. It's excellent in the cloth house after September 15. Very fine at normal season.....	Nov. 15	4.00
Illini Goldilocks. Medium sized decorative. Tall vigorous golden yellow pompon. Fine in greenhouse early September-November 1, and in the late cloth house. Needs 60° to set buds. Good disbud October-December	Nov. 15	5.00
Princeton. Intermediate decorative.....	Nov. 15	4.75
Susanne Miller. Large anemone.....	Nov. 15	4.75
Tacoma. Large golden yellow pompon with very broad petals. Best at normal season.....	Nov. 15	5.00
Yellow Fellow. Intermediate decorative.....	Nov. 15	5.00
Yellow Sculpture. Lemon yellow sport of Sculpture. Daisy.....	Nov. 15	4.50
N Bojangles. Yellow daisy.....	Nov. 20	4.75
Illini Sunspot. Large yellow pompon. Good fall disbud.....	Nov. 20	4.75
Klondike. Orange yellow pompon. Used in March and April under glass, even better late September-December. Good under cloth mid-September to November 1. A short grower, but even. Some susceptibility to verticillium.....	Nov. 20	4.25
N Lollipop. Lemon yellow formal pomp. Most used in the cloth house mid-September to November 1 and Florida, also valuable September-December under glass. Reliable bud-set, good hard shipper	Nov. 20	3.75
Mingo Chief. Buff yellow anemone.....	Nov. 20	5.25
Pippin. A medium sized yellow pompon. Outstanding for heavy production. Good under glass from mid-March through April and especially good in October-November. Also used some in the cloth house. Actually, in order to get best quality, the sprays should be thinned some.	Nov. 20	4.25
DN Yellow L. I. Beauty. Large anemone. Disbud on spray.....	Nov. 20	4.50
N Yellow Highbrow. Sport of Highbrow. Intermediate golden yellow pompon. Fine cloth house variety mid-September through November 1 and Florida. Best greenhouse period, September 15-January 1. Needs 60° for bud-set.....	Nov. 20	4.25
D Yellow Nevada. Intermediate anemone. Good disbud spring and fall.....	Nov. 20	4.75
D Sultan. Large formal decorative. Large golden yellow amber pomp. Fine especially as disbud March 1 through November. Especially good in midsummer. Good spray pomp spring-fall and for late cloth house.....	Nov. 22	5.00
Yellow Bountiful (NEW). Sport of Illini Bountiful.....	Nov. 23	5.00
Yellow Paramonut. Deep yellow sport of Paramount. Fine under glass April and in fall-early winter	Nov. 23	4.50
Yellow Rolinda. Medium anemone. Buff yellow.....	Nov. 23	3.50

YELLOW POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description 12-Week Varieties—Pinch August 10

Normal
Flowering
Date Price
50 Only

	Champagne. Intermediate single. Golden yellow.....	Nov. 25	\$5.00
N	Goldsmith. Large decorative, exceptionally pleasing color and fine larger flower. For normal season only	Nov. 25	4.00
	Goldenrod. Full round and solid yellow pompon.....	Nov. 25	4.50
	Highlander. Intermediate decorative. Excellent bright yellow under glass mid-October to January 1 only	Nov. 25	4.25
	Illini Gold. Intermediate pompon.....	Nov. 25	5.00
	Illini Wampum. Bright yellow anemone with greenish cushion. Valuable for greenhouse crop late March-May 1 and September 15 to January 1. Also cloth house October only.....	Nov. 25	4.75
N	Sunnyside. Attractive golden yellow pompon. Sunnyside is the number one golden yellow pompon for normal flowering Thanksgiving. It sets evenly, produces quite heavily, is amply long stemmed, and a good strong color.....	Nov. 25	4.25
	Yellow Priscilla. Medium decorative, lemon yellow.....	Nov. 25	3.50
DN	Yellow Valencia. This is a sport of Valencia. Formerly known as Golden Jane. For more details on Valentias see White Valencia page 23.....	Nov. 28	4.50
	Yellow Cordova. Intermediate pompon.....	Nov. 30	4.75
	Gold Medal. Small yellow button pompon.....	Dec. 1	5.00
N	Omega. Intermediate pompon. Much used for normal flowering. Also greenhouse early spring. Also October cloth house.....	Dec. 1	4.25
N	Yellow Galaxy. Sport of Galaxy. Deep lemon yellow intermediate single possessing the wide flat petal so attractive in its parent. Useful from October 15 through the full winter program.....	Dec. 1	4.50
	Yellow Fortune. Deep yellow sport. Used in cloth house.....	Dec. 1	4.50

13-Week Varieties—Pinch August 15

	Brandywine. A deep orange yellow decorative.....	Dec. 5	5.00
	Cinderella. Intermediate single. Good in greenhouse November 15-March 15.....	Dec. 5	4.75
	Dark Yellow Cameo (NEW—Neal). A deep yellow selection from Yellow Cameo.....	Dec. 5	4.50
N	Golden Acclaim. Intermediate pompon. Golden yellow. Selection from Acclaim. Intensification of Yellow Acclaim. Fine under glass mid-November through late March.....	Dec. 5	4.50
	Golden Harvest. Small deep golden yellow pompon.....	Dec. 5	5.00
	Goldtone. A heavy petalled yellow single.....	Dec. 5	5.00
	Jackpot. Very large golden yellow decorative. Needs 60° to set.....	Dec. 5	4.75
	Yellow Acclaim. Good yellow sport from Acclaim.....	Dec. 5	4.50
	Yellow Cameo. Intermediate decorative. Best at normal season.....	Dec. 5	4.75
D	Yellow Enchantress. Large anemone, lemon yellow.....	Dec. 5	5.00
	Yellow Spangles. Deep yellow sport of Spangles.....	Dec. 5	5.00
	Goldie. Deep yellow, small pompon for winter.....	Dec. 10	5.25
DN	Imp. Yel. Supreme. Large anemone. Good disbud. Tall.....	Dec. 10	4.75
	Yellow Satellite. Yellow sport from Satellite—for winter.....	Dec. 10	5.25
N	Corsair. Fine, bold, medium large, golden yellow pompon. It is definitely the number one winter yellow, both for normal flowering and for the December-March "year round" crop. It will flower well either held at 60° or if dropped to 55° after color shows. It produces well even on somewhat shortened time. If held above 60° after buds show, it will stall badly.....	Dec. 12	3.50
	Cream Snowcrest. Cream colored sport of Snowcrest.....	Dec. 13	5.00
	Yellow Snowcrest. A clear yellow sport. Bright green eye. Sprays. Nice December-March.....	Dec. 13	4.50

14-Week Varieties—Pinch August 23

	December Gold. Intermediate decorative.....	Dec. 15	4.75
	Sequin. Small yellow pompon. A late Pixie. Superior to Golden Anniversary.....	Dec. 15	5.00
N	Shamrock. Large yellow decorative. Fine December 1-March 1 under glass.....	Dec. 15	4.25
N	Yellow Garza. Intermediate anemone. For normal season.....	Dec. 15	4.50
	Yellow Riviera. Intermediate decorative.....	Dec. 15	5.00
	Gold Seal. Intermediate yellow single.....	Dec. 20	5.00
	Revelry. Intermediate yellow decorative. Resembles Yellow Revelation with improved flower quality	Dec. 20	5.00
N	Sunkist. Intermediate deep golden yellow single.....	Dec. 20	5.00
N	Sunrise. A yellow pompon. Best described as a late Gold Coast. Sunrise is not sensitive to low night temperatures. A better growth habit than either Yellow Snow or Golden Anniversary.....	Dec. 20	4.50

YELLOW POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description	14-Week Varieties—Continued	Normal Flowering Date	Price 50 Only
N Vibrant. A loose petalled large deep golden yellow. An excellent bread and butter yellow pomp for normal season (Christmas) and on to January-February (lighted). Good producer, a trifle short stemmed, but not cranky on temperature. Remove center bud.....		Dec. 20	\$4.25
Yellow Kramer. Large decorative. Good shipper, used extensively on the west coast.....		Dec. 20	5.00
Golden Anniversary. Small pompon. Very popular at normal season.....		Dec. 24	4.50
15-Week Varieties—Pinch Sept. 1			
N Siren. A yellow decorative. Similar to Vibrant, smaller and later. Tolerates low night temperatures		Dec. 25	4.25
Yellow Revelation. Medium pompon, lemon yellow.....		Dec. 25	4.00
N Yellow Snow. Intermediate pompon. Important late normal season variety.....		Dec. 25	4.25
Yuleflame. Large decorative.....		Dec. 25	4.50
Golden Snowbound. Intermediate decorative.....		Jan. 5	4.75
Ill. Yel. Snowbound. Yellow sport of Snowbound.....		Jan. 5	4.50

PINK POMPONS

A Complete List of Garden (Hardy) Varieties on Page 44

6-Week Varieties

P Joan Helen. Dark purple shading to crimson. Responds for spring pot plants very readily; makes a beautiful plant. Color is good.....	Sept. 10	4.00
PD Nye's Favorite. Large shaggy decorative lavender. Responds for spring pot plants.....	Sept. 10	4.50
P Orchid Helen. Medium decorative, orchid lavender. Responds for spring garden pot plants....	Sept. 10	5.00
P Cecelia. Medium decorative purple. Flowers produced in abundance on beautifully shaped plants. Responds well as spring pot plant.....	Sept. 25	4.50
P Major Cushion. Small decorative lavender pompon. Produced on a well rounded plant. Responds for spring pot plant either as a 6 inch or 3 inch pot mum. Temperature should be 60° or better.....	Sept. 25	4.00
PD Myrtle Walgreen. Large pompon, amaranth purple. Responds for spring pot plants.....	Oct. 1	4.50
PN Spellbound. Intermediate decorative. Excellent for spring and fall pot culture. Very pleasing lavender-pink	Oct. 1	4.00

7-Week Varieties

P Petrisian Pink. Intermediate light pink pompon. For the garden and spring pot plants.....	Oct. 5	4.50
P Petrisian Rose. Small lavender rose pompon. For the garden and spring pot plants.....	Oct. 5	4.50
Dream Girl. Intermediate light pink pompon. Outdoor cut flower.....	Oct. 10	5.25
P Courtier. Lavender pink decorative. Good as an early pot plant. Compact garden variety....	Oct. 10	4.50
PN Joybringer. Salmon rose decorative. Dwarf, compact and spreading habit. Desirable for borders and pot culture spring and fall.....	Oct. 10	4.50
Lassie. Large bright pink decorative. Outdoor cut flower. Garden backgrounds.....	Oct. 10	5.00
Miguel. Salmon rose decorative. A garden cut flower variety. Excellent spray and growth habit. Background	Oct. 10	5.25
P Mischief. Small single. Dark purple with contrasting yellow discs produced in profuse abundance on a globose plant. A colorful novelty that lends itself for spring and fall pots. Also an attractive foreground garden variety.....	Oct. 10	4.50
Allegro. Small shrimp pink decorative.....	Oct. 12	5.25
Lavender Lady. Light lavender decorative. Tall. Background.....	Oct. 12	5.25
P Masquerade. Lavender button. Foreground plantings. Spring pots.....	Oct. 12	4.50
Northern Queen. Intermediate decorative. Pink. Larger flower, more vigor than Petrisian Rose. A superb garden variety of semi-dwarf habit. Very hardy.....	Oct. 12	5.25
P Alert. Dark purple, intermediate decorative. An impressive color for spring and early fall pot plants. Medium treatment.....	Oct. 14	4.50
N Betty. Intermediate light salmon pink decorative.....	Oct. 14	5.00
P Fuchsia Fairy (NEW). Small light pink decorative. Compact, globose growth habit similar to the Cushion varieties. Spring and fall pot plants. A marked color improvement over Major Cushion as a foreground garden variety.....	Oct. 14	4.50
Sonnet. Intermediate coral salmon pompon. For the garden. Outdoor cut flower.....	Oct. 14	5.25



←JETFIRE

A fine strong deep red pomp. Color at its best in cool weather, but still attractive at moderately high temperatures. See page 27.

BLUECHIP→

With its partner, Portrait has rapidly come to be the #1 pink pompon for both greenhouse and cloth house cut flowers. Remarkably fine color, even bud-set and good production.



PINK POMPONS

Variety and Description		8-Week Varieties—Pinch July 10	Normal Flowering Date	Price 50 Only
P Citation.	Intermediate pink pompon. Attractive pot plant disbud. Recommended April through June and again in October. One of the best late garden varieties.....		Oct. 15	\$4.75
P Cupid.	Small pink decorative. Dwarf, masses and spreads as a garden variety. Spring and fall pot plant.....		Oct. 15	4.50
Elizabeth Hood.	Large light orchid pink pompon.....		Oct. 15	4.75
Enterprise.	Intermediate amaranth pink pompon. Excellent substance. Used in early cloth house, greenhouse, spring and fall.....		Oct. 15	5.00
Fairyland.	Intermediate decorative, lively pink color. A low temperature variety that improves Carolyn Yosick; also a spring and fall pot plant.....		Oct. 15	5.00
Jester.	Intermediate dark orchid pink daisy. Very early and vigorous.....		Oct. 15	5.00
N Jewell.	Lavender pink. Pompon.....		Oct. 15	4.75
Mayfair.	Intermediate, smooth pink single. Growth and production surpasses that of Reward. Valuable for cut April through October in the greenhouse, and through October in the cloth house		Oct. 15	4.75
N Carolyn Yosick.	A medium sized pompon, good pink color. We find it best under glass from mid-September through its normal date.....		Oct. 20	4.50
N Mirth.	Medium to large pink daisy. Especially valuable for spring greenhouse but good mid-April to mid-October, also cloth house.....		Oct. 20	4.75
Tsukushi Pink.	Intermediate light pink daisy.....		Oct. 20	5.25
Capt. Cook.	Medium pompon. Deep rose.....		Oct. 23	4.00
Mary McArthur.	Small pompon.....		Oct. 23	4.75
Prelude.	Intermediate coral pink single.....		Oct. 24	5.00
9-Week Varieties—Pinch July 16				
Betty Rose.	Large anemone.....		Oct.25	5.00
Elvira.	A semi-dwarf pink daisy.....		Oct. 25	4.50
PN Ethrela.	Intermediate deep orchid pink anemone. Dwarf, breaks freely, responds well. High temperature color retention. Disbud pot plant year round.....		Oct. 25	4.75
Gail (NEW—Dillon).	Small pink pompon. Selection from Pink Dot that displays an additional over-all color intensity. A cloth house variety.....		Oct. 25	5.50
Jessie.	Intermediate pompon. Dot sport.....		Oct. 25	4.75
October Pink.	Intermediate pink daisy.....		Oct. 25	5.00
N Pinkette.	Intermediate pink pompon. For May and June and again in September and October in the greenhouse; also, September-October in the cloth house.....		Oct. 25	4.50
N Pink Dot.	Pleasing pink with deep orchid eye. Most valuable in the cloth house late July-October and for Florida. Also used under glass May through October. Some growers space closer than average to improve production.....		Oct. 25	4.00
P Reveille.	Small pomp, bright pink. Cut flower spring and fall, also early cloth house.....		Oct. 25	5.00
N Reward.	Very productive bright pink daisy. Valuable under glass May 1 through October and in the cloth house July 15 through October. Holds color and stands up rather well in summer. A little short stemmed. Nice at normal date.....		Oct. 25	4.00

PINK POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description		Normal Flowering Date	Price 50 Only
9-Week Varieties—Continued			
Vogue. Large pink single for greenhouse spring and fall. Beautiful form and substance; good in August to September cloth house.....		Oct. 25	\$4.75
D Thomas Johnson (NEW). Large decorative. Deep orchid pink. Ideally suited to the fast disbud programs. Develops exceptional stretch and heavy rigid stems. Individual flowers surpass the size of Portrait. Color and petallage improved by bright days and cool nights.....		Oct. 28	5.50
Ballerina. Large lavender daisy.....		Nov. 1	4.75
DN Bluechip. Medium large pleasing luminous pink decorative. One of the top two 9-week pink pompoms. Excellent under glass for early April through November 15. Color lightens some in summer, but remains very pleasing. Top-notch cloth house pink mid-July through October. Much used in Florida. Sets bud at 54°. See page 31.....		Nov. 1	3.50
Dk. Pink Buckingham (NEW). Intermediate intensified pink single. Sport of Pink California Daisy. A west coast cloth house variety.....		Nov. 1	5.25
D Lillian Doty. Large pompon. Disspray and disbud.....		Nov. 1	4.75
D Pinkchip (NEW—Harper). Intermediate decorative. A flattering light pink selection of Bluechip. Identical growth habit. Color resists fading. Can be grown whenever Bluechip is recommended. Greatest color difference is noted when finished at 60° or less. Greenhouse May 1–November 15. Cloth house July 15–November 1. This variety should eventually contribute to a more extensive appreciation for the light pink colors associated with Chrysanthemums.....		Nov. 1	5.50
Pink Calif. Daisy. Medium large rose pink daisy. West coast cloth house (W. H. Buckingham).....		Nov. 1	5.00
Rainbow. Small coral pink single.....		Nov. 1	5.00
W. H. Buckingham. Intermediate single.....		Nov. 1	5.00
Tempo. Intermediate deep pink decorative. The 9-week Masterpiece. Recommended April through October in the greenhouse, and for the cloth house September 15–November 1.....		Nov. 3	4.50
10-Week Varieties—Pinch July 22			
Delight. Medium large bright pink daisy with pleasing yellow eye. Fine under glass early April through July and in fall. Also cloth house early August on. Remove center bud.....		Nov. 5	4.75
Dreamboat. Intermediate pompon.....		Nov. 5	5.00
P Onecta. Pale pink, quilled, large flower. Suitable for novelty pots or spring-fall cut flowers.....		Nov. 5	5.00
Parisienne. Pleasing medium large shell pink daisy. Nearest shade to a true pink in Mums. Color improves Reward for greenhouse crop mid-April through June and mid-September to mid-November.....		Nov. 5	4.50
P Criterion. Large decorative, pleasing pink color, compact habit. One of the top two pink pot mum varieties. Fine large flowers. A good dependable pot mum round the year. Best if disbudded. Good spray pompon April–June and mid-September to Thanksgiving. Cloth house mid-July to October. Sets bud at 54°.....		Nov. 8	4.00
Dark Bulkeley. Intermediate pompon.....		Nov. 8	5.00
PDN Portrait. Attractive medium large lavender pink pompon. Heavily used for pot plant year round (disbudded); more compact habit than Bluechip. Excellent cloth house variety early August through October. Much used under glass, especially late March and April and in late fall. Grown some as disbud September 15 through June.....		Nov. 8	3.50
PD Dark Portrait (NEW—Wolfe). Large pompon. Dark magenta sport of Portrait. Equally as versatile. Maximum color perfection achieved with a low temperature finish. Pots tall treatment March through June; medium treatment September through February. Sprays—Greenhouse mid-September through mid-November and March through June. Cloth house July through October.....		Nov. 8	5.50
PD Pink Portrait (NEW—Yoder Bros.) Large pompon. Light lavender pink Portrait sport with an identical growth habit. A useful supplement for Portrait during periods of the year when a shade lighter than Portrait may be desired. Pots tall treatment—March through May; Medium treatment—mid-September through February. Fast disbuds mid-September through May. Spray crops—Greenhouse mid-September through mid-November, and March through May. Cloth house July through October.....		Nov. 8	5.50
N Bonnie. Intermediate pompon. Very pleasing smooth pink. Temperature tolerance and general appearance much like Illini Igloo—flower some larger. Improved Pinkette form and color. Formal and hard. High temperature color retention is good. Spray crops late April through mid-November. Cloth house mid-August through mid-October. Tolerates 56°.....		Nov. 10	4.50
D Codenza (NEW—Yoder Bros.) Large anemone disbud. Lavender pink. Vigorous and responsive. Recommended from October through May. Tolerates low temperature 56° for bud initiation and requires 60° or less for best finishing results. Vastly improves the quality and growth of Enchantress as fast winter disbud.....		Nov. 10	5.50

PINK POMPONS

Variety and Description 10-Week Varieties—Continued

	Normal Flowering Date	Price 50 Only
Cover Girl. Light pink anemone with salmon pink cushions.....	Nov. 10	\$5.00
Dk. Linda Lou. Intermediate anemone. Better color.....	Nov. 10	4.50
Dk. Pk. Pandora. Intermediate decorative. See Pandora.....	Nov. 10	5.00
PD Humdinger. A formal pompon. Bright luminous violet purple formal pomp. Humdinger has enjoyed exceptional popularity as a year round pot plant—due to its showy, versatile color and compact habit. Suggest 6 cuttings per 6-inch pot for well filled out plant. Color fades some in heat. Also used as spray pomp spring and fall and in cloth house. Disbud spring and fall. Tolerates 54°.....	Nov. 10	4.00
N Linda Lou. Medium large lavender pink anemone. Dependable for April-May greenhouse crop and again mid-September to Thanksgiving. Good cloth house variety August-October. Tolerates 54°.....	Nov. 10	4.50
N Nobility. Intermediate light pink single. A quality daisy. Recommended May, June, October and November in the greenhouse.....	Nov. 10	4.75
DN Pandora. Large bright luminous pink decorative. If given ample warm temperature for bud set and flowered in its season, Pandora is hard to beat for both quality and fine color. We find it excellent flowered between October 1 and its normal date. Very nice under cloth through September-October. Must have a full 60° to set bud.....	Nov. 10	4.25
N Pennant. Medium deep pink decorative. A very heavy producing variety. Recommended for April through normal season in the greenhouse, and August through October in the cloth house. It does quite well in our experience in the greenhouse, even during severe heat used somewhat as disbud and pot variety.....	Nov. 10	4.25
P Personality (NEW—Yoder Bros.) A large luminous pink incurved pomp. Tolerant of 56° for bud initiation and development. Adds color and form improvement to Queen of Pinks as a pot plant. Use medium treatment for March through June and September through November single pinch. Uniquely favored with short internodes and large foliage which compliments it when grown as a pot plant. See below.....	Nov. 10	5.50
Salmon Pandora. Intermediate decorative. See Pandora.....	Nov. 10	5.00
Scintillation. Intermediate pompon. Pink. Very vigorous. Superb cloth house variety mid-September through mid-October. Greenhouse mid-September through mid-November. Requires 60° for bud initiation.....	Nov. 10	5.00
Soprano. Large single. Disspray.....	Nov. 10	5.00
Thyra. Intermediate pompon. Good disbud in fall.....	Nov. 10	4.75
Tuxedo. Large anemone. Good disbud November-December.....	Nov. 10	5.00
Anthem. Intermediate pink anemone. Exceptional in spray programs. April through mid-June and September through mid-November.....	Nov. 12	5.25
Celebration (NEW). Salmon pink with golden bronze overcast. Pleasant novelty color if finished at low temperature. Spray pomp spring and fall.....	Nov. 12	5.25
DN Masterpiece. Very pleasing soft yet intense pink formal. The Masterpiece varieties are excellent from mid-March through mid-May and again from October 1 till normal date under glass. Used under cloth later in the season. They are heavy producers, make nice sprays, but colors do fade rapidly in heat. Tolerates 54°.....	Nov. 12	4.25
N Memorial. Medium large pink anemone. Used under glass April-May and in fall. Also cloth September-October.....	Nov. 12	4.75
Rose Masterpiece. Intermediate pompon.....	Nov. 12	4.50
Salmon Masterpiece. Intermediate pompon.....	Nov. 12	4.50



←PERSONALITY

Fine luminous pink pompon. Shows promise as an improvement over Queen of Pinks in better color, compact habit.

HUMDINGER→

Humdinger — and it has been just that. It's a bright luminous violet purple. Such colors ordinarily are limited sellers but this one has gone over the top.



PINK POMPONS

P—Varieties best for pot culture

D—Varieties that make good disbuds

N—Best varieties for fall or natural season flowering (without shade)

Variety and Description		Normal Flowering Date	Price 50 Only
11 Week Varieties—Pinch August 5			
Arbutus. A small shrimp pink pompon particularly useful in cloth house.....		Nov. 15	\$5.00
Brocade. Intermediate shell pink daisy.....		Nov. 15	4.75
DN Dark Norma. Large anemone. Good disbud November-April.....		Nov. 15	4.75
Freida. Large anemone, light lavender.....		Nov. 15	4.00
Orchid Beauty. Intermediate anemone.....		Nov. 15	5.00
N Taffeta. Pleasing soft pink decorative. Used heavily in the cloth house mid-September to October. Also under glass late March-April and early fall. Reliable bud-setter, good producer, and good shipper. Color fades rapidly at high temperature.....		Nov. 15	4.25
DN Almega. Large silvery pink pompon. Excellent form, color, and substance. At its best under glass in late fall and early spring, and in cloth house mid-September to October. Disbud.....		Nov. 20	4.00
D Dk. Pk. L. I. Beauty. An intensified color selection of Pink L. I. Beauty. Disbud.....		Nov. 20	4.75
N Grand Slam. Brilliant silvery pink daisy for November-December.....		Nov. 20	4.75
Pinky. Intermediate decorative.....		Nov. 20	5.00
DN Pink L. I. Beauty. Large anemone.....		Nov. 20	4.75
Illini Formal. Intermediate rose pink pompon. Flowers for Thanksgiving. Very novel form. Greenhouse crop March-April; cloth house.....		Nov. 23	4.50
N Minuet. Intermediate pompon. For greenhouse October-November.....		Nov. 23	4.50
Illini Springtime. Productive, clear pink daisy. Excellent under cloth and greenhouse September-December.		Nov. 15	5.00
12-Week Varieties—Pinch August 10			
DN Beautiful Lady. Large soft pink anemone. Short and excellent for fall and winter pot plant. Good disbud.		Nov. 25	4.50
D Delmar. Vigorous clear pink decorative. Almega pink. Productive. Improved Almega habit. Spray crops and short disbuds March through April; mid-September through November. Cloth house mid-September through mid-October.....		Nov. 25	4.50
Hasegawa Pink. Intermediate lavender single.....		Nov. 25	5.00
Illini Roseglow. Intermediate pompon. Pink. Best in fall.....		Nov. 25	5.25
Pink Cloud. Light pink decorative. Greenish overcast until mature.....		Nov. 25	5.00
Princess. A small pink pompon. Cloth house in October.....		Nov. 25	4.50
DN Dark Valencia. Large daisy. See White Valencia, page 23.....		Nov. 28	4.50
D Dubonnet Valencia. Dubonnet sport of Valencia. See White Valencia.....		Nov. 28	5.00
D Orchid Valencia. Large single. See White Valencia.....		Nov. 28	5.00
D Salmon Valencia. Large single. See White Valencia.....		Nov. 28	4.75
DN Valencia. Large daisy. See White Valencia.....		Nov. 28	4.50
Nugano. Quality pink pomp for late fall. Best under glass October-November-December. Medium tall.		Nov. 30	5.00
Heritage. Medium large formal dark pink pompon. Used under glass March-April and late November-December. Good production, response, habit, but color rather heavy.....		Dec. 1	4.50
13-Week Varieties—Pinch August 15			
D Dark Enchantress. Deeper pink sport.....		Dec. 5	4.75
DN Enchantress. Large lavender pink anemone. Good spray pomp (disspray) and disbud mid-November to December.....		Dec. 5	4.75
Argyle. Small pink pompon. For winter flowering.....		Dec. 10	4.75
N Debutante. Medium large pink daisy for mid-November through February. Best pink daisy for the winter greenhouse crop. Very reliable.....		Dec. 10	4.00
D Pink Supreme. Large anemone. Pink disbud, tall.....		Dec. 10	4.75
D Ruffled Supreme. Large anemone. Lavender. Disbud.....		Dec. 10	4.75
Dk. Pk. Minstrel. A clear, clean deep mulberry shade of Minstrel.....		Dec. 13	4.50
Lt. Pk. Minstrel. Shell pink sport of Minstrel.....		Dec. 13	4.75
DN Imp. Dark Supreme. Large pink anemone. Good disbud.....		Dec. 13	4.75
Imp. Pink Minstrel. An improved Minstrel. Its color resembles that of Pink Dot and it does not deteriorate rapidly with maturity. Imp. Pink Minstrel has form, substance and color.....		Dec. 13	4.75
N Minstrel. A medium small pompon, a good pink shade. We find its best place in December under glass where it is very attractive if given ample heat to set buds evenly. Partial disbudding will make individual flowers larger.....		Dec. 13	4.25

PINK POMPONS

Variety and Description 14-Week Varieties—Pinch August 23

	Normal Flowering Date	Price 50 Only
Coronet. Intermediate lavender daisy.....	Dec. 15	\$5.00
Dark Riviera. Deeper sport.....	Dec. 15	4.50
N Riviera. Very attractive luminous pink decorative. Use for winter greenhouse crop. December through February. Requires 60° for bud-set and cool finish.....	Dec. 15	4.50
Amer. Beauty Kramer. Rose pink decorative pompon. Kramer varieties are used in quantity along the west coast, are good shippers.....	Dec. 20	5.00
Burgundy Kramer. Medium decorative burgundy.....	Dec. 20	5.00
N Defiance. Medium large decorative for winter. Needs 60° for bud set and cool finish.....	Dec. 20	4.50
Peach Kramer. Medium decorative, salmon peach pink.....	Dec. 20	5.00
Pink Kramer. Medium decorative rosy lavender.....	Dec. 20	5.00
Pk. Treasure Island. Medium decorative. Light lavender.....	Dec. 20	3.50
N Medallion. Intermediate lavender rose pomp. A good pink for flowering November through February.	Dec. 20	4.50
Rosalind. Intermediate daisy for winter. Tolerates 56°.....	Dec. 20	4.75
Rose Medallion. Rose pink, sport of Medallion.....	Dec. 20	4.75
Shell Pink Kramer. Medium decorative light pink.....	Dec. 20	5.00
Alvoda. Large smooth portrait pink decorative. Excellent pomp for winter greenhouse crop (November 15 to March 15). Best winter pink in our experience.....	Dec. 25	4.50
Lynda McLane. A late pink pompon. Growth habit that does not run into blind growth and a color that is highly acceptable. A much needed variety for the late natural crop.....	Dec. 25	4.75
Sophilia. Latest small pink pompon. Similar to Snowcrest in size and habit. Natural season flowering.	Dec. 25	4.50

BRONZE AND RED POMPONS

A complete List of Garden (Hardy) Varieties on Page 45

6-Week Varieties

P Orsona. Reddish bronze pompon, responds well for spring garden pots.....	Sept. 20	5.00
P Iron Mountain. Deep red pompon changing to rust. A very beautiful red when first open, fades rapidly. Responds very sharply for spring pots. Well suited for either 6 inch or 3 inch pots and responds for Valentine's Day.....	Oct. 1	4.50
P W. P. Snyder. Intermediate decorative. Apricot bronze. Dwarf, compact and prolific. For garden and pot plant culture.....	Oct. 1	4.75

7-Week Varieties

P Aglow. Orange-bronze pompon. Small flower. Low, compact growth. Spring and fall pot plants. Medium procedure. Showy fall garden variety for a "foreground" border.....	Oct. 5	5.50
Firecracker. Mahogany bronze decorative. Outdoor cut flower. Tall.....	Oct. 5	5.00
PN Mona. Very hard, intermediate rust bronze pompon. A variety for border and pot culture.....	Oct. 5	4.50
P Remembrance. Intermediate carmine red pompon, compact growth. For garden and pot plant culture. Best with 60° minimum temperatures.....	Oct. 5	4.50
P Sept. Cheer. Cherry red single, low growing. Responds well for spring pot plants.....	Oct. 5	4.00
N Bamboo. A buff orange daisy. Excellent outdoor cut flower habit.....	Oct. 10	5.25
Calumet. Rawhide bronze pomp. Fine for cut flower under glass May 1 to August 1, October, and for the earliest cloth house crop (late July). Good cut flower normal season.....	Oct. 10	4.75
P Caravan. Large salmon bronze decorative, garden type, compact rugged growth. Spring pots.	Oct. 10	4.50
Carmine Queen. Carmine red pompon.....	Oct. 10	5.00
Carnival. Small pompon.....	Oct. 10	5.00
P Dolli-Ette (NEW—Merrick). Intermediate spoon. Golden-bronze. An interesting and colorful novelty. A shapely pot plant with medium treatment for early spring and fall. Prolific and durable as a "foreground" garden variety. New forms such as this will stimulate interest and appeal for the early garden varieties.....	Oct. 10	5.50
Mogul. Intermediate coral bronze decorative. Outdoor cut flower.....	Oct. 10	5.25
Orangeade. Intermediate daisy. Orange bronze. Vivid color, compact. Prolific garden variety.	Oct. 10	5.25
P Red Velvet. Intermediate decorative.....	Oct. 10	5.00
P Toronto. Intermediate orange-bronze decorative. Excitingly beautiful in the garden. Sturdy stems, prolific bloomer, and a spreading cushion type growth. Attractive spring and fall pots using medium treatment. Establishes new standards in the 7-week group. A must-have for every home garden.....	Oct. 10	5.50

BRONZE AND RED POMPONS

Variety and Description	7-Week Varieties—Continued	Normal Flowering Date	Price 50 Only
Admiral. Dark crimson red decorative. Outdoor cut flower.....		Oct. 12	\$5.00
P Coralhue (NEW—Yoder Bros.). Small pompon. Apricot-coral. Low, spreading growth habit. Free breaker. Spring and fall pot plant with short treatment. Effective as a "foreground" garden variety. More double and more prolific than Joybringer.....		Oct. 12	5.50
P Morocco. Intermediate decorative. Reddish-bronze. Free breaker, with a rigid spreading growth habit. Excellent spring and fall pot plant. Medium treatment or 2nd delayed pinch. Superb fall garden variety. Contributes needed durability to the garden variety group.		Oct. 12	5.50
PN Mrs. Du Pont. Large decorative. Color is a warm bronze. Widely known because of Mother's Day pot plant value. Also well suited to gardens.....		Oct. 12	4.50

8-Week Varieties—Pinch July 10

N James Stewart. Apricot gold pompon. Important for early cloth house. Responds with Norona in the early shadings.....	Oct. 15	4.75
P Radiance. Intermediate red decorative. Breaks freely. Responds uniformly. Non-fading color. Medium procedure for April through May and mid-September, early October pots.	Oct. 15	4.50
N Rajah. Large scarlet red daisy.....	Oct. 15	5.00
P Sagamore (NEW—DePetris). Brilliant orange bronze large decorative; suitable for pot culture.	Oct. 18	5.50
Valcome (NEW—DePetris). Vivid bronze incurving blooms of good size and substance, dwarf bushy growth.	Oct. 18	5.50
Bonfire. Small intense scarlet red pompon.....	Oct. 20	5.25
Jemima. Large pompon, dark bronze.....	Oct. 20	3.50
Paradise. A striking and unusual deep coral red daisy. At its best April 1 through July 15, and in early fall in the greenhouse and early August on in the cloth house.....	Oct. 20	4.75
Paxon. Luminous bronze pompon. Deeply serrated petals, resembling Illini Snowdrift but larger and fuller.....	Oct. 20	4.50
Talisman. Talisman bronze; intermediate daisy. Color holds exceptionally well at high temperatures. For greenhouse May-August, cloth house mid-July through September.....	Oct. 20	5.00
Br. Mary McArthur. Orange bronze sport.....	Oct. 23	5.00
P Lee-Ette (NEW—Merrick). Small double spider. Silver-bronze. Only reverse color displayed on completely tubular petals. A bizarre novelty for spring and fall pots with medium treatment. Equally as attractive as an intermediate fall garden variety.....	Oct. 23	5.50

9-Week Varieties—Pinch July 16

Bonton. Medium pompon, rosewood.....	Oct. 25	3.50
N Bronze Dot. A very colorful bronze with red eye. Excellent under cloth August through October and under glass May and October-November.....	Oct. 25	4.25
N Buckskin. Tawny bronze daisy. Improved California daisy. Excellent under cloth house August 1 through October, and under glass May through October. A pleasing yellow in mid-summer greenhouse.	Oct. 25	4.25
N Gaiety. Large coral bronze single combined with Paradise and Prelude constitutes a fine trio of new pastels for spring and fall.....	Oct. 25	4.50
Firebird. Intermediate decorative.....	Oct. 25	4.75
Judy (NEW—Dillon). Small pompon. Bronze Dot selection. Manifests a solid dark coral bronze coloration. Recommended for cloth house July through October.....	Oct. 25	5.50
Marianne (NEW—Dillon). Small pompon. Bronze Dot selection as an over-all light golden bronze. Same growth habit as parent. Recommended for cloth house from July through October.	Oct. 25	5.50
P Red Ethelda. Intermediate coral red anemone. Dwarf, compact and responsive. Spreads well. Best color retention with low temperature finish. Pot plants.....	Oct. 25	5.00
Sally (NEW—Dillon). Small pompon. An intensified bronze and increased size selection from Bronze Dot. Cloth house July through October.....	Oct. 25	5.50
Sybil. Pleasing golden apricot daisy. Fine under glass May 1 through October, and under cloth August through October. Very attractive shade, sets bud at 56°.....	Oct. 30	4.75
P Barbara Fuller. Attractive dark coral red anemone. Good pot variety for September-December. Compact habit improved Gypsy.....	Nov. 1	4.50
Br. Buckingham. Intermediate single.....	Nov. 1	5.00
Bronzechip (NEW—Yoder Bros.). Intermediate decorative. Orange-bronze sport of Bluechip. Valuable cloth house variety from July through October. Recommended May through June, and September through mid-November in the greenhouse.....	Nov. 1	5.50
Bronze Daisy. Intermediate single.....	Nov. 1	4.75
N Buccaneer. Rich bronze daisy. Very little fading even under high temperatures.....	Nov. 1	4.50

BRONZE AND RED POMPONS

Variety and Description 9-Week Varieties—Continued

Variety and Description	Normal Flowering Date	Price 50 Only
Firefly. An early red pompon that holds its color exceptionally well.....	Nov. 1	\$4.75
P Ginger (NEW—Yoder Bros.). Intermediate anemone. Reddish-bronze. Free breaking habit. Will initiate and develop its buds at 56°. Produces a symmetrical pot plant from October through May using medium treatment with a 2nd delayed pinch. A livelier color than Gypsy. Has a more extended flowering period than Barbara Fuller.....	Nov. 1	5.50
Imp. Br. Daisy. Intermediate bronze single. Growth habit similar to Bronze Daisy. Color is more intense and vivid than original.....	Nov. 1	5.00
Imp. Red Daisy. An improved selection—in petalage, color.....	Nov. 1	4.75
Navaho. Intermediate pompon, attractive brick red shade.....	Nov. 1	4.75
Red Daisy. Intermediate single.....	Nov. 1	4.75
Red Seneca. Intermediate decorative.....	Nov. 1	4.75
Seneca. Intermediate decorative.....	Nov. 1	5.00

10-Week Varieties—Pinch July 22

N Beauregard. An attractive orange-bronze pompon. Medium sized decorative type flower. It's excellent in the cloth house after August 1, sets buds easily and produces well. We find it very desirable in the fall greenhouse crop—from mid-September through Thanksgiving, also for spring, but not in summer. Long stemmed.....	Nov. 5	3.50
N Bittersweet. Intermediate single.....	Nov. 5	4.75
Butterscotch. Intermediate pompon.....	Nov. 5	5.00
Cassandra. Intermediate pompon.....	Nov. 5	5.00
Dark Beauregard (NEW—McFarland). Intermediate pompon. A luminous mahogany bronze sport of Beauregard. Same growth habit. Slightly smaller flower. Better high temperature color retention. Greenhouse April through mid-November, cloth house mid-July through October.....	Nov. 5	5.50
N Jetfire. Flaming medium red decorative pompon. At its best in the cloth house September-October or under glass in spring and fall. Holds color well under cloth August-September. Used somewhat as pot plant September-December (tall treatment). Susceptible to verticillium. See page 31.....	Nov. 5	4.00
Magician. A large bronze pompon about the size of a partially disbudded Masterpiece. Fine in cloth house.....	Nov. 5	4.75
Mrs. Chas. Wylie (NEW). Dark bronze anemone. This variety makes an excellent disbud and responds well to short day treatment either in cloth house or under glass.....	Nov. 5	4.50
D Nectarine (NEW—Yoder Bros.). Intermediate apricot orange pastel decorative. Has no color competition during its season. Vigor of Copperhead. More beautiful form. Ideal either as a spray or fast disbud when able to finish at 60° or less. Greenhouse, cloth house. When grown as a spray, benefits from removal of center bud.....	Nov. 5	5.50
N Orange Beauregard. Medium pompon. Our notes on Orange Beauregard read: "good yellow in summer, good orange in spring, good bronze in fall." Good under cloth. Produces well, stands high summer temperatures exceptionally well. It will crop well anywhere from spring till Thanksgiving.....	Nov. 5	4.00
Red Rust. Intermediate decorative.....	Nov. 5	4.75
N Rubicon. A strong bronze-red decorative pompon. We find it hard to beat under glass from mid-September till about November 15, after which we switch to Rusticon used May-early June in greenhouse. It is also very fine under cloth from early September on. Rather on the short stemmed side, but a fine strong color, and a good producer.....	Nov. 5	4.25
P Gypsy. Small rust bronze anemone. Good spreading compact pot plant habit, used in pots March-May, and again September-December.....	Nov. 8	4.50
Bronze Linda Lou. A bronze sport of Linda Lou.....	Nov. 10	4.75
D Bonze Pandora. Bright coral bronze Pandora. Nice under glass September 15-November 15 and late cloth house. Needs 60° to set.....	Nov. 10	4.75
D Bronze Tuxedo. Large anemone. Disbud.....	Nov. 10	5.00
Chanticleer. A large reddish bronze pompon.....	Nov. 10	5.00
Chevron. Pleasing intense red bronze. Holds color better than Red Rust or Seneca. Fine under cloth or in the greenhouse mid-September through October.....	Nov. 10	4.50
Climax. Small to medium size intense orange pomp. Good under glass early April to Thanksgiving, and in the cloth house from mid-July on. Sets buds at 56°. Holds color well at high temperature.	Nov. 10	4.25
Copperhead. A fine large warm coppery bronze decorative. A good pot variety mid-September to mid-May but must have tall treatment to offset tall growth. Good cut flower April 1 to mid-May and early fall and excellent disbud mid-September to mid-May.....	Nov. 10	4.25
Firegleam. A fiery orange decorative. Best at normal season.....	Nov. 10	5.00
P Inca (NEW—Yoder Bros.). Intermediate anemone, amber-bronze turning to bright yellow at high temperatures. Breaks freely, spreads and produces well. Versatile pot plant variety throughout the year using medium treatment. Single or 2nd delayed pinch recommended. Sprays mid-April through mid-November. Superior to Sunray for either pot plant or cut flower purposes.	Nov. 10	5.50

BRONZE AND RED POMPONS

10-Week Varieties—Continued

Variety and Description	Normal Flowering Date	Price 50 Only
N Samovar. Pleasing and unusual rough red pomp. Fine under cloth September 15 through October and under glass mid-September to Thanksgiving.....	Nov. 10	\$4.50
N The Titan. Large anemone. Disbud.....	Nov. 10	5.00
D Bronze Masterpiece. Intermediate pompon. Nice color.....	Nov. 12	4.50
Dk. Br. Masterpiece. Dark sport of Br. Masterpiece. Brick red.....	Nov. 12	4.50
Gold Braid. A two-toned bronze pompon.....	Nov. 12	5.25
Illini Tangier. Large rusty red bronze decorative.....	Nov. 12	5.25
Illini Honey. Small honey amber pompon. Good producer, excellent spray.....	Nov. 12	5.25
Illini Redhead. Small pompon.....	Nov. 12	4.75
Illini Regal. A deep maroon-violet pompon. Attractive novelty button type maroon.....	Nov. 12	5.00
D Paragon. Large attractive rust red pomp. Produces fine heavy sprays early October to Thanksgiving. Good disbud early March to early May and mid-September to November. Cloth house from August on.....	Nov. 12	4.25
Red King. Intermediate red daisy.....	Nov. 13	5.00
Amberhue. Intermediate daisy. Orange-bronze with green eye. Spray program May through June and September through October.....	Nov. 14	5.00
Cadet. Intermediate red anemone.....	Nov. 14	4.50

11-Week Varieties—Pinch August 5

N Mrs. Dewey. A heavy petalled deep bronze daisy for normal season.....	Nov. 15	4.75
Shalimar. Lively orange bronze anemone.....	Nov. 15	5.00
Red Princeton. Intermediate decorative. Attractive rust red.....	Nov. 15	4.75
N Thelma. An exceptionally fine warm orange-scarlet pompon. Does well October through November and April in the greenhouse, developing its warm bright color well at that period. Also very fine in the cloth house from mid-September on. Fine at normal season.....	Nov. 15	4.00
Illini Warrior. Intermediate pompon. Fine for Thanksgiving.....	Nov. 20	4.75
Legal Tender. Intermediate decorative.....	Nov. 20	4.50
N Rusticon. Fine bright rust red pomp. For the October-November greenhouse crop. Excellent normal season (Thanksgiving) and cloth house mid-September through October.....	Nov. 20	4.25
D Illini War Paint. Smooth maroon red. At its best as a fall disbud (October-November), used as pompon same period. Also pot mum—tall treatment. Used in the cloth house September 15 through October.....	Nov. 22	5.00
DN Olmura. Pleasing Valencia apricot anemone. Unusual and attractive disbud September through May. Attractive unusual color. Good spray pomp March-April and in fall. Cloth house mid-September-October.....	Nov. 22	5.25
N Bronze Minuet. Intermediate pompon.....	Nov. 23	4.75
Dk. Bronze Minuet. A rich deep salmon bronze sport.....	Nov. 23	5.25
N Festival. Intermediate single. Fine for Thanksgiving.....	Nov. 23	4.75
N Red Rolinda. Intermediate anemone for November and December.....	Nov. 23	4.50
N Rubaiyat. Warm velvety red formal pomp. At its best October through Christmas under glass; must be finished cool. Good in the cloth house mid-September through October.....	Nov. 23	4.25

12-Week Varieties—Pinch August 10

DN Bronze Goldsmith. Large decorative. Very popular for normal season flowering. Does not shade well. Makes attractive disbud.....	Nov. 25	4.25
Falcon. Intermediate reddish bronze pompon.....	Nov. 25	4.75
Illini Redwood. Intermediate red pompon. Hard durable, well-formed flower. Fine red pompon for Thanksgiving and December.....	Nov. 25	4.75
Yolanda. Intermediate tawny bronze anemone.....	Nov. 25	5.00
DN Apricot Valencia. Large single; warm apricot-salmon shade. See notes on Valencias, page 23.	Nov. 28	4.50
D Crimson Valencia. Large crimson single. See White Valencia, page 23.....	Nov. 28	4.75
Indian Head. A reddish apricot single.....	Nov. 28	4.75
Amberina. Bright orange bronze intermediate decorative.....	Dec. 1	5.00
Coppertone (NEW). Medium pompon, orange bronze, excellent growth and flower substance....	Dec. 1	4.50
N Galaxy. Showy deep orange scarlet daisy. Valuable from October through early April under glass. Thoroughly reliable—a "sure cropper." Good producer. Much used in year round pomp programs.....	Dec. 1	4.00
Holiday. Intermediate red single. Sprays.....	Dec. 1	4.75
Orange Galaxy. Bright golden orange. Free blooming.....	Dec. 1	4.50
Red Heritage. Salmon red sport from Heritage.....	Dec. 1	4.50

BRONZE AND RED POMPONS

Variety and Description	13-Week Varieties—Pinch August 15	Normal Flowering Date	Price 50 Only
D Bronze Enchantress. Orange bronze sport.....		Dec. 5	\$5.00
N Debonair. Large pompon. Crimson red.....		Dec. 5	4.50
Mahogany Viking. Intermediate decorative.....		Dec. 5	5.00
DN Red Enchantress. Fine red sport of Enchantress. Valuable spray pomp or disbud from normal season through February. Fine large red at Christmas.....		Dec. 5	4.50
Cavalcade. Mandarin red pompon. Gold tipped.....		Dec. 10	5.00
Harlequin. Crimson red intermediate decorative.....		Dec. 10	4.75
D Imp. Br. Supreme. Large anemone. Disbud.....		Dec. 10	5.00
Pageantry. A red pompon. Best described as a red Snow.....		Dec. 10	5.00
D Red Supreme. Large anemone. Disbud.....		Dec. 10	5.00
N Christmas Star. Medium sized red daisy for the winter crop. Good from December 1 to March 1 under glass. Fine for normal date or lighted for Christmas. DDT and other sprays injure the foliage. On the whole we rather prefer Merrymaker.....		Dec. 12	4.25
Bronze Minstrel. A medium large formal pompon. Has good bronze color. Like the other Minstrels, it needs a full 60° to set buds, and is good in the greenhouse only from mid-November through December. Fine for Christmas.....		Dec. 13	4.50
N Dk. Br. Minstrel. Reddish bronze sport.....		Dec. 13	4.50
Red Minstrel. A sport from Bronze Minstrel.....		Dec. 13	4.50

14-Week Varieties—Pinch August 23

N Bronze Riviera. Pleasing bronze decorative pomp. Used for winter greenhouse crop December-February; needs full 60° to set bud and must be finished cool. Best spray if grown single stem.....	Dec. 15	4.75
N Christmas Greeting. A large red decorative. The one red pompon for Christmas that produces well. Crops well from early December through March 1. Color tricky under certain types of artificial light. Nice flowered normally.....	Dec. 15	4.00
Claret. A brilliant red daisy.....	Dec. 15	4.75
Sarong. Intermediate single crimson.....	Dec. 15	5.00
Topaz. Warm, orange bronze single.....	Dec. 15	5.00
Brick Red Kramer. Brick red decorative pompon. Produced on stiff stems and good sprays. Used extensively on west coast. Good shipper.....	Dec. 20	5.00
Bronze Kramer. Bronze decorative, very good shipper. Used extensively along the west coast....	Dec. 20	5.00
Copper Kramer. Luminous copper decorative.....	Dec. 20	5.00
N Merrymaker. A medium large red daisy. In our experience it's the most reliable one for December 1-March 1.....	Dec. 20	4.25
DN Poinsettia. Striking large bright red daisy. Flowered at normal season (for Christmas) it is beautiful, but must be given ample time and cool temperature at the finish to develop quality and production. Disbudding helps it.....	Dec. 20	4.25
Red Kramer (NEW). Bright red decorative.....	Dec. 20	5.00

Special Collections

Rooted cuttings of a given number of varieties may be ordered as a collection. Example: 500 rooted cuttings, 50 each of 10 varieties; or 350 rooted cuttings, 50 each of 7 varieties. Any desired quantity may be ordered in units of 50 or more.

Minimum collection is for 300 rooted cuttings. In ordering, please specify:

1. Whether you want standards or pompoms.
2. Flowering date (response group) desired.
3. Colors desired.
4. Time of shipment.

Our propagator reserves the right to make the choice of varieties. Your order will be filled with good varieties and the cuttings you receive will be properly labeled as to variety. And of course, only our usual top grade cuttings will be shipped. The reduction in price is made only because our propagator can select varieties that are in good supply at the time you want shipment.

	Per 100
300 to 450 Rooted Cuttings.....	\$5.50
500 to 950 Rooted Cuttings.....	5.25
1000 or more Rooted Cuttings.....	5.00



Four top notch garden varieties for spring pot plant flowering. From the left: Chris. Columbus, Mrs. Du Pont, Yel. Chris. Columbus, and Spellbound. Final pinch delayed on all three varieties three weeks after start of short days. Result: shorter plants, more flowers. See page 1 for complete notes on flowering garden varieties in the spring.

Garden (HARDY) Varieties

THE BEST in Garden Mum Varieties for Various Purposes

FOR GARDEN USE where short bushy plants with lots of flowers are wanted	FLOWERING PERIOD	WHITE	YELLOW	PINK	BRONZE
	Early Sept.	Paper White Candlelight Osage (Cushion) D. D. Ahrens	Reverence Delight Early Gold Genista	Rosa (Cushion Daisy) Nyes Favorite Joan Helen (Daisy) Amelia Orchid Helen	Early Harvest (Cushion) W. P. Snyder Flamboyant Early Kathleen
	Late Sept.	Powderpuff (Cushion) Chris. Col. White Cloud North Star (Daisy) White Bounty	Yel. Chris. Col. Real Gold Ming Golden Carpet (Cushion)	Coquette (Cushion) Royal Robe Chippewa Alert	Apache Lipstick (Cushion) Chippa Red Rouge Cushion
	Early Oct.	Gardenia Lyric (Daisy) Avalanche Pepita	Chas. Nye Moonlight Arlora Freya Chiquita	Spellbound Maj. Cushion Joyous (Cushion) Mischief (Daisy)	Comd. Cushion Red Cloud (Cushion) Iron Mountain Mrs. DuPont
FOR CUT FLOWERS	FLOWERING PERIOD	WHITE	YELLOW	PINK	BRONZE
	Early Sept.	Early Sept. varieties too short stemmed and bushy for cut flower use.			
	Late Sept.	White Wonder North Star (Daisy)	Golden Wonder Astoria Lee Powell	Petrisian Rose Malinda Brown Petrisian Pink	Br. Wonder Kath. Lehman Holiday (H)
	Early Oct.	Horizon Limelight Classic	Gold Rush Treasure Sunstone Sarasota	Sonny Northern Queen Mayflower Enterprise Courtier	Firecracker Calumet Carmine Queen James Stewart
FOR SPRING POTS In addition to these, all late September- early October Pompons in the general list (page 19) marked "P" (pots) are recommended.	FLOWERING PERIOD	WHITE	YELLOW	PINK	BRONZE
	Spring	Chris. Columbus Crystal Maid Lyric (Daisy) Ostosa Marshmallow	Yel. Chris Col. Gold Lode Valiant Ming Pomponette Honeysweet	Spellbound Mischief (Daisy) Maj. Cushion Joyous Joybringer	Iron Mountain Calumet Lipstick Remembrance W. P. Snyder Caprice

Garden (HARDY) Varieties

For additional Garden Varieties, see general list beginning on page 10. Generally varieties which flower on or before October 15 are suitable for garden use.

P—Varieties suitable for pots

D—Better when disbudded

Variety and Description	Height	Flowering Date	Price 50 Only
Candlelight. Decorative, secondary border, ivory white.....	Med.	Sept. 5	\$4.25
Osage. Cushion, decorative, border, white.....	Short	Sept. 5	5.00
D. D. Ahrens. Decorative, background, white.....	Tall	Sept. 10	4.25
Paper White. Decorative, secondary border, white.....	Med.	Sept. 10	4.25
P Crystal Maid. Cream decorative pompon. Low growing plant.....	Short	Sept. 12	5.00
P Calcite. Cream white decorative. Good spring garden pot plant.....	Med.	Sept. 15	4.00
Gloria. Medium sized decorative pompon. Very free flowering. Flowers are larger and more durable than Chris. Columbus. Good growth habits and foliage.....	Med.	Sept. 15	5.00
Polar Ice. Decorative and secondary border, white.....	Med.	Sept. 15	4.50
Powderpuff. Cushion, border, white.....	Short	Sept. 15	4.50
White Cushion. Cushion, border. White showing traces of pink in buds. Blooms late the first year.....	Short	Sept. 15	4.00
P White Bounty. Cream white button pompon. Good spring pot plant.....	Tall	Sept. 15	4.25
D White Tower. Large pompon, secondary border and cut, cream white.....	Tall	Sept. 15	4.25
Jessamine Williams (NEW). White, quilled type spoon, early free flowering variety.	Med.	Sept. 25	5.50
P Ostosa. Large white low growing. Responds to off-season blooming. A good addition to the spring garden pots.....	Short	Sept. 25	4.50
P Shalimar (H). Large white decorative. Flowers produced on medium height growth. Good Mother's Day and later pot. Better disbudded.....	Med.	Sept. 25	4.50
Theresa Stone (NEW). Creamy ivory pompon for secondary border or cut.....	Med.	Sept. 25	5.50
White Rice. Large pompon, border and pots, white.....	Short	Sept. 25	4.50
North Star. Single, background and cut flower, white.....	Med.	Sept. 28	4.50
P Pepita. Small button pompon. Good spring pot plant variety.....	Med.	Sept. 28	4.50
P Chris Columbus. Large decorative pompon. Cream white. Responds to off season blooming and is the top white garden variety for spring pot blooming. Also tops for 3 inch pot blooming.....	Tall	Oct. 1	4.00
Gardenia. Large white decorative. Flowers are very double and large, 3½ inches in diameter if disbudded. A very profuse bloomer combining extreme vigor and strong stems with excellent foliage on a semi-dwarf plant. Also used as a greenhouse pot plant. An outstanding variety.....	Med.	Oct. 1	4.50
Snow Fall. Decorative, secondary border, white.....	Med.	Oct. 1	4.50
Spindrift. Decorative, secondary border, white.....	Med.	Oct. 1	5.00
Avalanche. Large decorative, secondary border, cream white.....	Tall	Oct. 5	5.00
P Horizon. Medium decorative pompon. Good sprays with excellent stems and foliage. Exceptionally good as early cut flower under glass or in the garden. Responds very well for off-season flowering in the spring, either as cut or pot plant.....	Med.	Oct. 5	4.50
Ivory Glow. Large disbud, ivory.....	Med.	Oct. 5	4.00
Limelight. Decorative, background and cut, white.....	Med.	Oct. 5	5.00
P Lyric. Small single. Very attractive as spring pot plant.....	Short	Oct. 5	5.00
Marshmallow. Medium with waxy petals. Very good low growing garden variety, excellent for spring pots.....	Med.	Oct. 5	5.25
White Cloud. Decorative, secondary border, white.....	Tall	Oct. 5	5.25
Youdath's White. Large decorative, secondary border, white.....	Med.	Oct. 5	4.00
Benora. Dwarf cushion type. Excellent stems and foliage. Large 3 inch white flowers on well shaped plants.....	Short	Oct. 8	5.50
Albion (NEW—DePetris). Large reflexed white, compact growth habit with good stems and foliage.....	Med.	Oct. 10	5.50
P Classic. Pure white pompon. Used as cut flower under glass or in the garden. Not as good for this purpose as Horizon, but acceptable.....	Tall	Oct. 10	4.75
P Maestro. Medium cream pompon. Produced on very low growing plants.....	Short	Oct. 10	4.50
White Spoon. Spoon, secondary border, white.....	Med.	Oct. 10	4.50
P Silverplate. Medium decorative, pure white. Responds well for spring pot sales.....	Med.	Oct. 12	4.50
P White Wonder. Large pompon, secondary border and cut. Ivory white.....	Med.	Oct. 13	5.00
Blizzard. A pure white pompon with good spray formation, responds well in the early cloth house and greenhouse July through September.....	Med.	Oct. 15	4.25

WHITE GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
Irene. Small secondary border, or cut, white.....	Med.	Oct. 15	\$5.00
Norona. Small pompon, background or cut, white.....	Med.	Oct. 15	4.75
P Pilgrim. Clear white, a very good garden variety for spring pots. Secondary border.....	Med.	Oct. 15	5.25
Silver Ball. Large pompon, background or cut, white.....	Tall	Oct. 15	4.00

YELLOW GARDEN (Hardy) VARIETIES

Pathfinder. Decorative, serrated petals, deep lemon.....	Med.	Aug. 28	5.00
Reverence. Large decorative border, chamois yellow.....	Short	Sept. 1	5.00
P Early Gold. Medium pompon. Low growing, responds very sharply to off-season blooming. Sometimes considered too short.....	Short	Sept. 5	5.50
Golden Hours. Pompons, secondary border, chrome yellow.....	Med.	Sept. 8	4.00
Delight. Medium pompon, secondary border, golden.....	Med.	Sept. 12	4.75
Genista. Decorative, secondary border, canary yellow.....	Med.	Sept. 12	4.75
Defiance (H). Decorative, secondary border, golden yellow.....	Tall	Sept. 15	4.50
P Early Yellow. Small button, secondary border, deep lemon.....	Short	Sept. 15	4.00
Golden Carpet. Cushion, border, golden.....	Short	Sept. 15	4.50
Golden Cushion. Cushion, border, golden yellow.....	Short	Sept. 15	4.00
Muriel Rice. Large decorative, secondary border light lemon.....	Med.	Sept. 15	5.00
P Pomponette. Medium sized orange pompon. Low growing.....	Short	Sept. 15	4.00
Sunapee. Pompon, secondary border, deep lemon.....	Tall	Sept. 15	4.50
Yel. Cushion. Cushion, decorative, border, light yellow.....	Short	Sept. 15	4.00
Yel. Supreme (H). Cushion, border, bright lemon.....	Short	Sept. 15	4.00
Golden Gopher. Decorative and secondary border, orange yellow.....	Med.	Sept. 20	4.50
Real Gold. Large decorative, secondary border, deep golden.....	Med.	Sept. 20	5.00
P Sept. Sunshine. Medium single. Very prolific with blooms. Responds well for spring pot plants. Very showy, bright lemon.....	Med.	Sept. 20	4.00
Wychwood. Large pompon, secondary border, canary.....	Med.	Sept. 20	4.00
Canary Wonder. Large pompon, canary yellow.....	Med.	Sept. 25	4.50
Golden Sunset. Large decorative, background, copper gold.....	Med.	Sept. 25	4.50
Golden Wonder. Large pompon, secondary border and cut, golden.....	Med.	Sept. 25	4.50
Sept. Gold. Cushion, border, lemon.....	Short	Sept. 25	4.50
Spellbinder. Large decorative, bright yellow.....	Med.	Sept. 25	5.00
Sulphur Spoon. Spoon, secondary border, light yellow.....	Med.	Sept. 25	4.50
Tangerine. Large decorative, secondary border, deep orange.....	Med.	Sept. 25	4.50
Flaxen Beauty. Large decorative, pale lemon yellow.....	Med.	Oct. 1	5.00
Freya. Very large deep golden yellow. 4 inch blooms, produced on medium upright growth with excellent stems and foliage. Good flower placement.....	Med.	Oct. 1	5.00
P Honeycomb. Honey yellow pompon. Responds well for spring pot plants.....	Med.	Oct. 1	5.00
PD Ming. Medium large pompon, golden orange yellow. Responds well for spring pot plants.....	Med.	Oct. 1	5.25
Moonbeams. Pompon, secondary border and cut, pale lemon.....	Med.	Oct. 1	5.00
P Moonlight. Large bright yellow decorative pompon. Responds well for spring garden pots.....	Med.	Oct. 1	4.50
Tranquility. Decorative, secondary border, light lemon yellow.....	Med.	Oct. 1	5.00
P Yel. Chris. Columbus. Medium large, bright lemon decorative. Responds sharply to off-season blooming. By far the best of all the yellows for spring garden pots. Either as 6 inch or 3 inch pots.....	Med.	Oct. 1	4.00
Astoria. A very free flowering deep lemon pompon.....	Med.	Oct. 5	5.50
Charles Nye. Large pompon, secondary border, deep lemon.....	Tall	Oct. 5	4.75
P Chiquita. Small button, deep lemon. Responds well for spring garden pot plants.....	Med.	Oct. 5	4.50
Ethel Walters. Large incurved, disbud, light lemon sport of Ivory Glow.....	Med.	Oct. 5	5.00
P Garland. Small lemon yellow single; fine for spring pot plants.....	Short	Oct. 5	4.50
James Eadie. Large pompon, secondary border, deep chrome.....	Med.	Oct. 5	4.50
PD Mrs. Rotan. Large decorative, deep chrome.....	Med.	Oct. 5	4.50
Newton (NEW—DePetris). Large 4 inch golden yellow cactus flowering; dwarf bushy growth and good stem and foliage. Blooms from late September. Fully matures Oct. 5.	Med.	Oct. 5	5.50
Polaris. Single, secondary border, golden buff.....	Med.	Oct. 5	5.00
Roulette (NEW—DePetris). Large decorative, bright lemon yellow, dwarf growth. Responds well for spring pots. Flowers fully 4 inches across when disbudded.....	Short	Oct. 5	5.50
Yel. Avalanche. Large decorative, background, light lemon.....	Tal	Oct. 5	5.00
P Yel. Spoon. Light yellow spoon type flowers. Very artistic, responds well at Mother's Day and later as spring pot plant. Very novel.....	Med.	Oct. 5	4.75

YELLOW GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
P Spode. Large, bright lemon incurved. Short growing garden variety suitable for growing as disbud or spring pot plants.....	Short	Oct. 8	\$5.00
Sunstone. Spoon, novelty, background or cascade, light yellow.....	Tall	Oct. 8	4.50
Bright Forecast. Bright lemon pompon.....	Tall	Oct. 10	4.50
Goldrush. Medium single, lemon yellow. Responds to off-season blooming. Excellent cut flower under glass or in the garden. Responds well as spring garden pot plant.	Med.	Oct. 10	5.00
Golden Spoon. Spoon, secondary border, golden yellow.....	Med.	Oct. 10	4.50
Lee Powell. Large decorative, background and cut, Chinese yellow.....	Tall	Oct. 10	5.00
Treasure. Golden yellow pompons. Good stems and sprays for cut. Excellent for normal blooming under glass or outside blooming throughout the South.....	Tall	Oct. 10	4.75
P Yel. Blanket. Small yellow button. Responds for spring garden pot plants.....	Med.	Oct. 10	4.00
Carioca. Large decorative type, golden yellow. Another large flowered addition to the late garden varieties. Should be disbudded. Blooms are fully 4 inches across. Flowers are produced on good stems and foliage.....	Med.	Oct. 12	5.00
Goldfield (NEW—DePetris). Large yellow pompon. Solid round blooms, semi-dwarf growth habit with good stem and foliage. Responds well to shade.....	Med.	Oct. 12	5.50
P Lemonade. Pale ivory yellow. Used by some as spring pot plant. Responds well, but color is very light. We find Yel. Chris. Columbus by far the best variety.....	Med.	Oct. 12	4.50
Michigan. Large clear yellow. Blooms fully 4 inches and larger across, produced on beautiful vigorous plants with rigid stems. Should be disbudded and supported due to size of bloom. Good outside cut flower when protected from frost.....	Med.	Oct. 12	5.00
Moonbright (NEW—DePetris). Soft moonlight yellow, large perfectly incurved Chrysanthemum. Semi-dwarf habit, excellent foliage. Does not fade or tinge pink. Makes excellent pot plants.....	Med.	Oct. 12	5.00
Sunburst. Large golden yellow cactus type. Blooms 4 inches and larger when disbudded. Produced on vigorous plants with excellent foliage and stems. Should be supported since heavy rains and wind will blow the large blooms over.....	Med.	Oct. 12	4.25
Sweepstake. Pompon, second border, buff lemon.....	Med.	Oct. 12	5.00
Arlora. Fully double, bright lemon. Beautiful large perfect shaped blooms well spaced on very rigid stems from well branched plants with bright green foliage. An excellent specimen plant.....	Med.	Oct. 15	5.00
Buttercup (H). Large incurved, background and cut, golden.....	Short	Oct. 15	5.00
P Gold Lode. Medium reflexed, bright yellow. Early enough for garden use around Toledo and farther south. Responds excellently for spring garden pot plants. Either disbud or spray.....	Med.	Oct. 15	4.75
Golden Cheer. Pompon, background, bright lemon.....	Tall	Oct. 15	4.50
P Honeysweet. Large incurved, golden yellow. Early enough for garden use and responds excellently for spring pot plants. Should be disbudded.....	Med.	Oct. 15	5.00
Judith Anderson. Button, border, bright lemon.....	Med.	Oct. 15	4.00
Monitor (NEW—DePetris). Large golden yellow decorative with exceptional vigor. Excellent free form and substance. Very free flowering. Will produce a good crop of perfect 4-inch blooms if disbudded, with 24-30 inch stems. Responds well to shade.	Tall	Oct. 15	5.50
Rodell Improved. Button, background plantings, and cut flowers. Light lemon.....	Med.	Oct. 15	4.00
Sarasota. Medium pompon, bright lemon. Excellent cut flower variety for under glass, or the early cloth house.....	Med.	Oct. 15	5.00
Sundew. Large incurved, disbud, background and cut, golden.....	Med.	Oct. 15	5.00
P Valiant. Another large incurved, light golden Mum. Early enough for garden use. Responds well for spring pot plants. Should be disbudded.....	Med.	Oct. 15	5.00
Yel. Irene. Small button, background plantings and cut flowers. Light lemon.....	Med.	Oct. 15	4.00

PRICES FOR MORE THAN 50 OF A VARIETY ON ONE SHIPMENT

Note carefully instructions for ordering on page 9. No orders for less than 50 rooted cuttings of a variety accepted. Minimum total order, 500 cuttings.

50 only	\$3.00	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50
100-250 per 100.....	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00	8.25
300-450 per 100.....	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00
500-950 per 100.....	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75
1000-up per 100.....	5.00	5.25	5.50	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50

PINK GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
Gladness. Decorative pompon, border, China rose.....	Short	Aug. 28	\$4.50
Cecil Beed. Decorative, secondary border, deep lavender.....	Med.	Sept. 1	4.50
Salmon Precose. Large decorative border, salmon pink.....	Short	Sept. 1	4.50
Amelia. Cushion, border, lavender pink.....	Short	Sept. 5	4.00
Dean Kay. Cushion, border, shell pink.....	Short	Sept. 5	4.00
Purple Star. Decorative pompon, secondary border, brilliant purple.....	Med.	Sept. 5	4.00
Rosa. Cushion, border, rose pink.....	Med.	Sept. 5	4.50
Barbara Small. Pompon, secondary border and cut, lavender.....	Tall	Sept. 10	4.25
P Joan Helen. Dark purple shading to crimson. Responds for spring pot plants very readily; makes a beautiful plant. Color is good.....	Med.	Sept. 10	4.00
PD Nye's Favorite. Large shaggy decorative lavender. Responds for spring pot plants.....	Med.	Sept. 10	4.50
P Orchid Helen. Medium decorative, orchid lavender. Responds for spring garden pot plants.....	Med.	Sept. 10	5.00
Successor. Decorative, secondary border, silver lavender.....	Med.	Sept. 10	5.00
Adorable (NEW). Bright rose pink large flowered decorative pompon. Recommended as one of the better pinks.....	Med.	Sept. 15	5.00
Chippewa. Decorative, secondary border and cut, bright purple.....	Med.	Sept. 15	4.00
Lorenzo. Quilled, secondary border, dark purple.....	Med.	Sept. 15	4.50
Royal Robe. Decorative, secondary border, dark purple.....	Med.	Sept. 15	5.00
Violet. Decorative, bright purple.....	Med.	Sept. 15	4.00
Fairbow. Pompon, secondary border, lavender pink.....	Med.	Sept. 20	4.00
Heather Bloom. Decorative, secondary border, heather pink.....	Med.	Sept. 20	4.00
Purple Spoon (NEW). Soft purple.....	Med.	Sept. 20	5.00
Purple Waters (NEW). Deep purple. Completely double, large flowers on strong plants.	Med.	Sept. 20	5.00
Tapestry. Decorative, secondary border, salmon pink.....	Med.	Sept. 20	4.50
Capt. J. Smith. Cushion, border plant, lavender pink.....	Short	Sept. 25	4.00
P Cecelia. Medium decorative purple. Flowers produced in abundance on beautifully shaped plants. Responds well as spring pot plant.....	Short	Sept. 25	4.50
Coquette. Cushion border, rosy pink.....	Short	Sept. 25	5.00
Evangeline. Large decorative, secondary border, flesh pink.....	Med.	Sept. 25	4.50
Evelyn Devaney (NEW). Shell pink overlaid with pearl. Good stems and foliage.....	Med.	Sept. 25	5.00
Imp. E. Wonder. Pompon, secondary border and cut, lavender pink.....	Med.	Sept. 25	4.50
Jewelltone. Pompon, secondary border or pots, rose pink.....	Short	Sept. 25	5.00
Lady's Choice. Large decorative, secondary border or pots, ivory pink.....	Med.	Sept. 25	5.00
P Major Cushion. Small decorative lavender pompon. Produced on a well rounded plant. Responds for spring pot plants. Needs 60° or better.....	Short	Sept. 25	4.00
Olive Langland. Decorative, secondary border, apricot salmon pink.....	Med.	Sept. 25	4.00
Purple Cushion (NEW). Sport of Cecelia.....	Med.	Sept. 25	4.50
Reflection. Decorative, secondary border, rosy lavender.....	Med.	Sept. 25	5.00
Aristocrat. (H). Large decorative, secondary border, deep wine.....	Med.	Sept. 28	5.00
Joyous. Cushion decorative, border, lavender rosy pink.....	Short	Sept. 28	5.00
Malinda Brown. Pompon, secondary border and cut, lavender rose.....	Med.	Sept. 28	4.50
Misty Maid. Decorative, secondary border, light pink.....	Med.	Sept. 28	4.50
Pat Lehman. Decorative, peach pink.....	Tall	Sept. 28	4.50
Rosita. Button, secondary border, light lavender rose.....	Med.	Sept. 28	4.00
Tuneful (NEW). Rose pink pompon, large decorative blooms with darker centers, excellent for cutting in the home garden.....	Tall	Sept. 28	5.00
Twinkle. Cushion, border, deep rose purple.....	Med.	Sept. 28	4.50
Charm Spoon. Spoon, secondary border, rhodonite rose.....	Med.	Oct. 1	4.50
Fascination. Large decorative, secondary border, lavender pink.....	Med.	Oct. 1	4.50
Helen Bogue (NEW). Large rose purple decorative.....	Tall	Oct. 1	5.00
Mayflower. Very hard solid pompon. Soft luminous pink. Flowers are borne atop perfect sprays and rigid stems. Excellent early cut flower.....	Med.	Oct. 1	5.00
PD Myrtle Walgreen. Large pompon, amaranth purple. Responds for spring pot plants.	Med.	Oct. 1	4.50
Old Lavender. Large decorative, background, bright lavender.....	Med.	Oct. 1	5.00
Tiffany Rose. Medium large deep rose single. Very prolific bloomer, responds well for spring pot plants.....	Med.	Oct. 1	4.00
Troubadour. Bright rosy crimson large blooms 3 inches across.....	Med.	Oct. 1	4.50
P Spellbound. Medium decorative, brilliant lavender pompon. Responds beautifully to spring bloomings as pot plants.....	Med.	Oct. 1	4.00
Sonny. Small salmon pink pompon, excellent cut flower, either under glass or in the garden. Also responds well in the early cloth house shadings.....	Med.	Oct. 1	4.50

PINK GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
Alex Cummings. Decorative, disbud and background, deep rose pink.....	Tall	Oct. 3	\$5.00
P Petrisian Mauve. Decorative, background, raspberry mauve.....	Med.	Oct. 5	4.50
P Petrisian Pink. Decorative, background and cut, light pink.....	Med.	Oct. 5	4.50
P Petrisian Rose. Medium pompon, lavender rose in color. Very versatile, ideal as a garden cut flower. Good under glass as an early cut flower and responds either as a cut flower or spring pot plant very well.....	Med.	Oct. 5	4.50
Corona (H). Single background and cut, deep lavender.....	Tall	Oct. 10	5.00
P Courtier. Medium decorative, lavender pink pompon. Good as garden cut flowers and responds well for spring pots.....	Med.	Oct. 10	4.50
Dream Girl. Pompon, background and cut, light lavender.....	Med.	Oct. 10	5.25
P Joybringer. Low branching decorative pompon. Lavender rose overlaid with salmon. Ideally suited for spring pot plants. Responds well and makes a beautifully shaped plant. Color could be a little more desirable.....	Short	Oct. 10	4.50
Lassie. Large decorative, background and cut, deep pink.....	Med.	Oct. 10	5.00
Miguel. Salmon rose decorative. A garden cut flower variety. Excellent spray and growth habit. Background.....	Tall	Oct. 10	5.25
P Mischief. Small purple daisies with prominent yellow centers. Produced in abundance on sturdy well rounded plants. Responds very uniformly to off-season blooming. Makes a wonderful 6 inch or 3 inch plant for spring blooming. Cannot be used in the same proportion as white and yellow, but a very desirable spring pot plant.	Short	Oct. 10	4.50
P Orchid Spoon. Orchid lavender spoon. Responds for Mother's Day and later as a pot plant, novelty	Med.	Oct. 10	4.50
Ponca. Small decorative, border and background, dark lavender.....	Short	Oct. 10	4.50
Rose Spoon. Spoon, secondary border, lavender rose pink.....	Med.	Oct. 10	4.50
P Time. Large deep lavender rose pompon. Produced on strong stems. Good specimen plant in the garden when disbudded. Also responds for spring pot plants.....	Med.	Oct. 10	4.50
Adagio. Pompon, background, raspberry rose.....	Tall	Oct. 12	4.50
Allegro. Cushion type, shrimp pink.....	Med.	Oct. 12	5.25
P Lavender Lady. Lavender decorative pompon. Produced on a rather tall spreading growth. Responds well for spring pots.....	Tall	Oct. 12	5.25
P Masquerade. Lavender pink button pompons with dark rose centers. Responds well for spring pot plants.....	Med.	Oct. 12	4.50
Northern Queen. Large rose pink decorative with a dark center. Good cut under glass or in the garden.....	Med.	Oct. 12	5.25
Ronnie. Button, background and cut, dark lavender.....	Med.	Oct. 12	5.00
Titania (NEW—DePetris). Large raspberry rose, tall vigorous growth habit for background plantings.	Tall	Oct. 12	5.50
P Alert. Large dark purple decorative pompon. Produced on beautifully shaped plants either as 6 inch or 3 inch plants. Medium treatment.....	Med.	Oct. 14	4.50
Betty. Decorative, background and cut, pink rose center.....	Tall	Oct. 14	5.00
Fuchsia Fairy (NEW). Small light pink decorative. Compact, globose growth habit similar to the Cushion varieties. Spring and fall pot plants using medium treatment. A marked color improvement over Major Cushion as a "foreground" garden variety.	Short	Oct. 14	4.50
Sonnet. Decorative pompon, background and cut, salmon pink.....	Med.	Oct. 14	5.25
Citation. Large pompon, deep lavender pink. Responds well as spring pot plant.....	Med.	Oct. 15	4.75
Cupid (NEW). Small decorative dahlia formed pink, very good as a garden pot variety for spring.	Med.	Oct. 15	4.50
Enterprise. Medium pompon, amaranth rose. Produced on well formed and good stems. Exceptionally good as early fall cut flower under glass or in the garden when the weather permits. Also responds well in the early cloth house.....	Tall	Oct. 15	5.00
Elizabeth Hood. Large decorative, light lavender rose. Produced on good stems and sprays. Good cut flower under glass or in the outside garden where weather permits.	Med.	Oct. 15	4.75
P Jewell. Lavender pink button pompon. This needs very little introduction; an old-timer that is very versatile for either cut flowers under glass or in the garden and early cloth house. Responds as spring pot.....	Med.	Oct. 15	4.75

BRONZE GARDEN (Hardy) VARIETIES

Harvest Bronze. Decorative, border, apricot bronze.....	Short	Aug. 20	5.00
Early Harvest. Cushion, border, mahogany orange.....	Short	Sept. 8	5.00
Glow Worm. Semi-double cushion, border, orange scarlet.....	Short	Sept. 8	5.00
Harbinger. Large decorative, border, golden bronze.....	Short	Sept. 8	5.00
Autumn Song. Decorative, secondary border, wine rose.....	Med.	Sept. 10	4.25
Geo. Luxton. Large decorative, secondary border, light bronze.....	Med.	Sept. 12	5.00

BRONZE GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
Apache. Large decorative, secondary border, red and gold.....	Med.	Sept. 15	\$5.00
Autumn Beauty. Decorative, secondary border, chestnut red.....	Med.	Sept. 15	4.50
Autumn Tide. Decorative, secondary border plantings, coral salmon.....	Med.	Sept. 15	4.25
Br. Pomponette. Pompon, border, golden bronze.....	Short	Sept. 15	5.50
Chippa Red. Large decorative, secondary border and cut, maroon red.....	Med.	Sept. 15	5.00
Companion (NEW). Reliable early bloomer with good stems for home cutting. Fully double golden bronze.....	Med.	Sept. 15	5.00
Dark Red Gold. Button, dark red sport of Red Gold.....	Med.	Sept. 15	4.50
Early Bronze. Button, border, orange bronze.....	Short	Sept. 15	4.00
Early Crimson. Decorative, secondary border, bright crimson.....	Med.	Sept. 15	4.50
Early Kathleen. Decorative, secondary border, coppery bronze.....	Med.	Sept. 15	5.00
Flamboyant. Decorative flaming orange bronze.....	Med.	Sept. 15	5.00
New Marj. Mills. Large pompon, border, ruby red.....	Short	Sept. 15	5.00
Orloma. Decorative, cushion border, apricot bronze.....	Med.	Sept. 15	5.00
Red Gold. Button, border, red and gold.....	Med.	Sept. 15	4.50
Goblin. Small pompon, secondary border, golden bronze.....	Tall	Sept. 20	4.50
Mme. Cadillac. Large pompon, border, raspberry wine.....	Short	Sept. 20	4.50
P Orsona. Reddish bronze pompon, responds well for spring garden pots.....	Med.	Sept. 20	5.00
Red Glow. Small pompon, secondary border, dark red.....	Med.	Sept. 20	4.50
Scarlet Crimson. Decorative, secondary border, bright red.....	Med.	Sept. 20	4.50
Sept. Bronze. Button, secondary border, golden bronze.....	Med.	Sept. 20	4.00
Alpena. Decorative, secondary border, dark red.....	Med.	Sept. 25	5.00
Br. Wonder. Pompon, secondary border and cut, rosewood bronze.....	Med.	Sept. 25	4.50
Champ. Cushion. Cushion, border, deep bronze.....	Short	Sept. 25	4.00
Comd. Cushion. Cushion, border, red.....	Short	Sept. 25	4.00
Coppersmith (NEW). Large, 3 1/2 inch burnished terra-cotta bronze flowers produced on excellent plants. Excellent secondary border variety.....	Med.	Sept. 25	5.00
Crown Jewell. Decorative, secondary border, bright red.....	Short	Sept. 25	4.50
Elite Cushion. Cushion, border, salmon bronze.....	Short	Sept. 25	4.50
Football Bronze (NEW). Bronze buff. Another early large flowering bronze producing flowers on good stems for background plantings or cut flowers.....	Tall	Sept. 25	5.00
Holiday (H). Large decorative, golden bronze.....	Med.	Sept. 25	4.75
Mahogany Cushion. Cushion, border, jasper red.....	Short	Sept. 25	4.00
Marionette. Pompon, secondary border, rust red.....	Med.	Sept. 25	4.50
Plainsman. Decorative, secondary border, orange bronze.....	Med.	Sept. 25	5.00
Rouge Cushion. Cushion, border, bright red.....	Short	Sept. 25	4.50
Admiration. Decorative, secondary border, salmon fawn.....	Med.	Sept. 28	4.25
Crowning Glory (NEW). Coral bronze. Strong upright plants for background plantings and cutting.	Med.	Sept. 28	5.00
Kathleen Lehman. Large decorative, orange bronze.....	Med.	Sept. 28	4.50
Lipstick. Cushion, border, ruby orange.....	Short	Sept. 28	4.00
Bonfire. Decorative, secondary border, bright red.....	Med.	Oct. 1	5.25
Caprice. Large full deep apricot bronze decorative 4 inch blooms. Strong bushy semi-dwarf growth with excellent foliage.....	Med.	Oct. 1	5.00
Card. Spoon. Spoon type, secondary border, red bronze.....	Med.	Oct. 1	4.00
Fiesta. Pompon, secondary border, orange rust, good for cut.....	Tall	Oct. 1	4.50
Fire Engine. Single secondary border, flaming red. Good as spring pot.....	Med.	Oct. 1	4.00
Gondolier. Decorative, secondary border, crimson red.....	Med.	Oct. 1	5.00
P Iron Mountain. Deep red pompon changing to rust. A very beautiful red when first open, fades rapidly. Responds very sharply for spring pots. Well suited for either 6 inch or 3 inch pots and responds for Valentine's Day.....	Med.	Oct. 1	4.50
Jubilee (H). Pompon, secondary border, crimson red.....	Med.	Oct. 1	5.00
Leshara. Decorative, novelty, secondary border, mulberry red.....	Med.	Oct. 1	4.00
Magnificent. Decorative, secondary border, plum red.....	Tall	Oct. 1	4.50
Red Cloud (Cushion). Border, scarlet red.....	Med.	Oct. 1	4.00
Red Riding Hood. Decorative, secondary border, bright red.....	Med.	Oct. 1	4.50
Reverie. Decorative, secondary border, buff bronze.....	Med.	Oct. 1	4.50
Royal Ruby. Pompon, secondary border, dark crimson.....	Med.	Oct. 1	4.50
Sam Williston (Cushion). Border, deep red.....	Short	Oct. 1	4.00

BRONZE GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
P W. P. Snyder. Medium pompon, apricot orange. Responds well for spring pots. Well shaped plants. Must have full 60° temperature if bloomed before Mother's Day.	Med.	Oct. 1	\$4.75
P Aglow (NEW). Orange yellow pompon. Responds well as spring garden pot plant.	Med.	Oct. 5	5.50
Avalon. Pompon, background and cut, orange bronze.....	Tall	Oct. 5	3.75
Burgundy. Large pompon, background and cut, wine red.....	Tall	Oct. 5	4.00
Courageous. Decorative, secondary border, dark ruby red.....	Med.	Oct. 5	4.00
Cydonia. Decorative, background and cut, mahogany bronze.....	Tall	Oct. 5	4.00
Firecracker. Decorative, background and cut mahogany bronze.....	Tall	Oct. 5	5.00
Huntsman. Large decorative background or cut, scarlet orange.....	Tall	Oct. 5	5.00
Indian Red (NEW). Indian rust color, unique type flower.....	Med.	Oct. 5	5.00
P Mona. Rust bronze formal pompon, responds for spring garden pots.....	Med.	Oct. 5	4.50
Red Torch. Single, secondary border, bright red.....	Med.	Oct. 5	4.00
P Remembrance. Decorative dark carmine red. Holds color well and response good for spring pots when temperature is held at full 60° during bud set. Better to use for Mother's Day or later.....	Med.	Oct. 5	4.50
Ruby Pompon. Pompon, secondary border ruby crimson.....	Med.	Oct. 5	4.00
P Sept. Cheer. Cherry red single, low growing. Responds well for spring pot plants.....	Med.	Oct. 5	4.00
Andante (NEW—DePetris). Large broad petalled decorative of luminous peach apricot. Free growing but compact.....	Tall	Oct. 8	5.50
Aviator. Pompons, secondary border, copper bronze.....	Med.	Oct. 8	4.00
Beacon. Large decorative, background and cut, coral apricot.....	Tall	Oct. 8	4.50
Granada. Deep coppery bronze, decorative. Very free flowering. Intermediate size flower. Produced in masses on excellent stems and foliage. Medium height. Good secondary border plant.....	Tall	Oct. 8	5.00
Success. Large pompon, disbud, secondary border, deep crimson red.....	Med.	Oct. 8	4.75
Bamboo. Single prolific bloomer, background or cut, buff orange.....	Tall	Oct. 10	5.25
Blueblood. Decorative, background or cut amaranth red.....	Tall	Oct. 10	4.50
PD Columet (H). Brilliant apricot, large decorative pompon. Produced on excellent sprays, having good stems and foliage. Responds very well as spring pots, making a better plant than Mrs. DuPont. Responds well in the early cloth house and is used normal in the greenhouse as cut flowers, also where the weather permits it is a wonderful cut flower garden variety.....	Med.	Oct. 10	4.75
P Caravan. Large decorative, secondary border, salmon bronze.....	Med.	Oct. 10	4.50
Carmine Queen. Deep carmine red formal pompons produced on excellent sprays. Good early red cut flowers under glass or in the garden.....	Tall	Oct. 10	5.00
Carnival. Pompon, background or cut, burnt orange.....	Med.	Oct. 10	5.00
Dolli-Ette (NEW—Merrick). Intermediate spoon. Golden bronze. An interesting and colorful novelty. A shapely pot plant with medium treatment for early spring and fall. New forms such as this will stimulate interest and appeal for the early garden varieties.	Med.	Oct. 10	5.50
Fireside. Decorative pompons, background and cut, burnt orange.....	Tall	Oct. 10	4.50
Fulton Lewis Jr. (NEW). Lively apricot bronze, compact cushion type.....	Short	Oct. 10	5.00
Gladiator. Large 4 inch full decorative orange red. Plants are medium tall with upright stems and good foliage. Very free flowering considering size of blooms. Try disbudding this one.....	Tall	Oct. 10	5.00
Mogul. Pompon, secondary border, orange rust.....	Med.	Oct. 10	5.25
Orangeade. Intermediate daisy, orange bronze, compact, prolific garden variety.....	Med.	Oct. 10	5.25
P Red Velvet. Large decorative dark crimson. Responds readily for spring pots. Not quite as showy as Remembrance or Iron Mountain.....	Med.	Oct. 10	5.00
P Toronto. Intermediate orange-bronze decorative. Excitingly beautiful in the garden. Sturdy stems, prolific bloomer, and a spreading cushion type growth. Attractive spring and fall pots, using medium treatment. Establishes new standards in this group. A must-have for every home garden.....	Short	Oct. 10	5.50
Admiral. Pompon, background and cut, dark red.....	Med.	Oct. 12	5.00
Coralhue (NEW—Yoder Bros.). Small pompon. Apricot-coral. Low, spreading growth habit. Free breaker. Spring and fall pot plant with short treatment. Effective as a "foreground" garden variety. More double and more prolific than Joybringer.....	Short	Oct. 12	5.50
Crusader. Large double crimson red. Blooms 4 or more inches larger when disbudded produced on strong robust stems, with very strong flower petioles. This is an outstanding specimen variety when disbudded for the late Mum garden or as China Mums	Med.	Oct. 12	5.00
P Morocco. Intermediate decorative. Reddish-bronze. Free breaker with a rigid, spreading growth habit. Excellent spring and fall pot plant with short treatment. Effective as a "foreground" garden variety. More double and more prolific than Joybringer.	Short	Oct. 12	5.50
P Mrs. DuPont. Coral buff, large decorative pompon. Responds to off-season blooming, good for spring pots.....	Tall	Oct. 12	4.50

BRONZE GARDEN (Hardy) VARIETIES

Variety and Description	Height	Flowering Date	Price 50 Only
Witchery. Petal decorative, secondary border, golden bronze quilled.....	Med.	Oct. 12	\$4.50
Bokhara. Decorative, secondary border, brilliant red.....	Med.	Oct. 15	4.50
Chopin. Large incurved disbud, background light bronze.....	Med.	Oct. 15	5.00
Helma (NEW—DePetris). Large rich red semi-incurved, good stem and excellent foliage, a very colorful and durable flower.....	Med.	Oct. 15	5.50
P James Stewart. Small apricot gold pompon. Produced on excellent sprays and good stems. Good for early cloth house, cut and normal blooming under glass, also in the garden.	Tall	Oct. 15	4.75
Moonmaid. Pompon, background and cut, salmon bronze.....	Med.	Oct. 15	5.00
Radiance. Red decorative, responds uniformly and breaks freely making an excellent spring pot plant.....	Med.	Oct. 15	4.50
Rajah. Large scarlet red daisy. Good sprays and stems. Excellent as cut flower in the garden or under glass normal.....	Tall	Oct. 15	5.00
Resolute (NEW—DePetris). Large bright red, compactly incurved, suitable for dis-budding, semi-dwarf, compact. A trifle late for garden, but an excellent large incurved for pots.....	Med.	Oct. 15	5.50
Robinhue. Decorative pompon for background and cut, dark red.....	Tall	Oct. 15	4.50

SPECIAL COLLECTION of GARDEN VARIETIES

For growers who are not familiar with Garden Varieties, but who want a well-balanced assortment, we offer the following collections, which include the better varieties.

COLLECTION #1 Taller varieties for cutting.	COLLECTION #2 For bedding or borders.	COLLECTION #3 50% for cutting; 50% for bedding.	COLLECTION #4 For Easter, Mother's Day or Memorial Day pots. (state which)	COLLECTION #5 Cushion Varieties Only.
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Prices above 5 collections, each: 300 to 550 cuttings, \$5.00 per 100; 600 to 850 cuttings, \$4.75 per 100; 900 or more cuttings, \$4.25 per 100. Minimum collection, 300 cuttings. More than 300 cuttings must be ordered in units of 50.

Dr. Walter J. Haney, Michigan State College, shown with some trials of Dr. Lindstrom's garden Mums in 3-inch pots produced there last spring. The floriculture staff at Michigan has done much work along the lines of promoting cash and carry specials among retail shops. These smaller size pot Mums fit well into such a project.

An interesting idea on producing small pot Mums. These showy little fellows were grown in a raised bench and just prior to flowering were dug and potted in a 3-inch pot shown above. Much easier and cheaper to grow that way and apparently no problem of wilting after potting. Cloy Miller of Yoder Bros. with the plants.



On Growing Good Mums

ABOUT MUM SOILS

There isn't any one type of soil that Mums particularly favor. There are some rules of soil **management** that are quite important. Most important of these is the matter of humus. A hard poorly aerated soil just won't grow good Mums. A good Mum soil should have a loose open texture. When water is applied, it should soak into the soil, not run off. It should be possible to push one's fist down into a bench of Mum soil. A good Mum soil won't crack as it dries.

Most any reasonably good field or garden soil can be made into this kind of a porous open growing medium by additions of humus. Peat will do it, manure too—and some growers get humus by using sod rotted down.

Field Soils

Where new benches are being filled, or where soil is changed annually, outdoor field soil must be used. Any good field soil that has been growing good farm crops can be brought into the bench, 1½ inches of peat or other humus added, the soil steamed, and it will be ready to plant. Better results will often result if the land to be used is planted to a cover crop several years in advance of its use. Rye or Blue Grass are both excellent. It takes about two years to build up organic matter in soils in this way—and the amount of humus won't increase much after that. Fertilize the cover crop regularly. Post recommended 800 lbs. of 5-10-10 per acre the first year if no manure is used. After that, 200 lbs. of ammonium sulfate per acre applied each spring is recommended. Acidity must be checked, lime added if necessary. Tops are cut each year at the bloom stage.

Such cover crops should be turned under about one month before soil is needed in the bench. Since rotting of the roots etc. in these soils tends to take up available nitrogen, it is important to watch nutrient levels the first few months such soils are in the bench. Manure or peat may be added just before plowing field soils under—and will help in many cases.

Re-using Greenhouse Soils

The majority of cut flower growers now keep their bench soils in more or less permanently. It is almost standard practice to steam the soil annually. Humus is maintained by regular additions of peat, or sometimes well rotted manure, or both. Nutrients are supplied usually in liquid form, or sometimes dry.

By and large the system works well. It saves the tremendously expensive task of wheeling out hundreds of yards of soil during the hot summer weather. It eases the ever increasing problem of finding good fresh topsoil. A sterilized soil is free of weeds, soil-borne insects and diseases. With modern methods, steaming is really not too much of a job. Many year round Mum growers now steam all beds twice yearly.

Several points should be watched. Most important is to insure that adequate humus—peat—is added. Most soils will benefit from about 1 to 1½ inches of peat—(domestic or imported) annually. Peat can be overdone—resulting in a soil that stays too wet, aerates poorly. Mums won't grow in a peat bog. But, more often the error is the other way. Some growers add the peat as a mulch on cuttings benched in warm weather.

Another point worthy of mention here: somewhere there is a limit to the number of years a soil can be re-used. This

tends to become a problem quicker where one crop is grown continuously. We have all noticed that some of the very best crops of Mums—and other flowers—came from the first use of fresh outdoor soil. It's hard to put a limit here—five or six years of continuous cropping with Mums might bring the grower close to trouble. Try half a bench of fresh soil—do they grow better?

About Sterilizing Soils

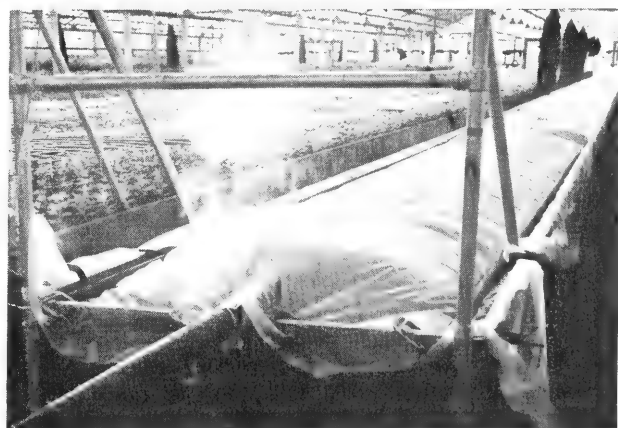
Steam is pretty generally used under glass.

A surprising number of growers are still going at this task the hard way. Some growers are still burying tiles or conduits. A completely satisfactory job of steaming can be done without burying anything. Briefly here is the procedure:

Generally, the peat or humus is added first. This is plowed into the soil, to a depth of 6 to 8 inches on ground beds or to the depth of the bench on raised benches. Next the conduit is laid down the bench—some means of conducting the steam from end to end. By far the easiest to handle and most efficient in our experience is the thin walled canvas hose—5 or 6 inches in diameter. A 150 ft. roll can be carried under your arm! Some difference from the heavy pieces of metal conduit. Source for the canvas hose: Pike's Peak Florist, 519 E. Columbia Street, Box 1303, Colorado Springs, Colorado.

Next a thin plastic sheet is laid over the bench, weighted down at the sides with pipe, etc.—or fastened to the side wall of a raised bench with strips of wood held in place with "C" clamps. Steam is then turned into the conduit until the coldest point is heated to 180° for 30 minutes. Preparation of the bench after tilling should take no more than half an hour for two men.

The cover is removed promptly after steaming. Then (once a year) 4 to 5 lbs. of 20% superphosphate are added. Where after-steaming troubles tend to appear, 3 to 5 lbs. of gypsum is also added. As a further precaution, some growers leach the soil quite heavily at this time—up to 5 gallons per sq. ft. This may be applied in one continuous irrigation if some sort of nozzle irrigation system has been installed. Otherwise, several heavy waterings all one day may be applied.



Steaming soils for year round Mums at West Chicago. Many growers steam twice or even three times yearly on year round Mum production. It seems to make for better growth.



Chemical sterilizing of Mum soils is used primarily by outdoor growers. The fine plant shown above comes from soil treated with the new Vapam—at Rinker's, Stuart, Florida. Laine Rinker, above left, and Allan Weise, above right. Perhaps nearly half of the Florida crop is being chemically sterilized, and something over half steamed at this time.

For more complete notes on steaming greenhouse soils, write for our booklet on the subject—no charge.

A few words on those after-steaming troubles. They are due to a variety of disturbances that, of course, result from steaming. Most typical is build-up of ammonia and nitrites which cause root tips to brown off. About 3 to 3½ weeks after steaming, plants will wilt, gradually at first, in some cases quite severely, even enough to kill the plant. Ammonia and nitrites (not nitrates) show fairly high on soil tests. The gypsum and leaching described above help. Since the trouble is most common in hot weather, steaming during cool season helps. Where the trouble appears, about all that can be done is to cultivate deep and carry the beds on the dry side—to help aerate the soil.

Chemical Sterilizing

If steam is impossible, chemical sterilizing is a lot better than nothing. If chemicals are used: **Chloropicrin** (tear gas) does the most effective job of killing disease organisms. However, plants are very sensitive to it—must not be used in a house where plants are growing. Also, takes some days for all gas to escape from soil. Not as dangerous to growers because of the strong odor. Trade name: **Larvacide**.

Methyl Bromide: less effective in killing disease organisms, but far less prone to injure plants. Clear Methyl Bromide can be used in a house with other plants with normal precautions. Methyl Bromide is more dangerous to growers since it has no strong characteristic odor. MC2 is Methyl Bromide with a small per cent of Chloropicrin as a warning agent—but also enough to injure plants.

FERTILIZER AND GOOD MUMS

Mums, being a heavy leafy plant, tend to be heavy feeders, especially mature plants, and during the seasons of active growth (summer-fall). However, it is just as easy to overdo on feeding as it is to cut them too short.

It is difficult to offer any suggestions on how much of what type of fertilizer to apply—and when. The only answer to this question is a soil test. Roughly the following nutrient levels should be maintained, in our experience:

Nitrates	20-40	parts per million, Spurway
Phosphorous	3-5	parts per million
Potash	20-40	parts per million
Calcium	150-250	parts per million
pH	6.4-7.0	parts per million

Solo-Bridge reading (1 to 5 dilution) not over 70.

In general it is desirable to start out newly planted cuttings at levels somewhat below those given above. However, even the newly planted cutting must have nutrients.

Few growers actually do their feeding strictly according to soil tests. The more common practice is to set up a regular feeding routine that from previous experience is known to be about adequate. Then the benches are "spot checked" by means of soil tests every month or two. The feeding program can then be adjusted if nutrients are found to be too low or too high.

Methods of Application

Most common, least labor, and definitely better in terms of plant response in our experience, is liquid application. This can be done either by installing stationary tanks and piping the dilute fertilizer directly to the plants—or by various mechanical equipment. An ordinary 10 or 20 gallon insecticide sprayer can be used. A stock solution is made up of 2 lbs. of Kapco 25-0-25 per gallon of water for example. One quart of this stock solution is poured into the tank of a 20 gallon sprayer—after which it is filled with water. The insecticide nozzle is removed from the end of the applicator, the pressure set down to maintain about 20 lbs. This 20 gallons will feed 200 sq. ft. in about 5 minutes.

We have had favorable results for several years now with a new proportioning type of injector from Smith Precision Products Company, 1135 Mission Street, South Pasadena, California. This unit injects liquid fertilizer concentrate (or stock solution) into a water line (1 to 100) in proportion to the amount of water that is taken from the line. It is entirely automatic. With this equipment, a man can fasten a hose to this fertilizer line, draw out water to which the liquid feed has been injected—and apply it directly to the crop. One unit will serve two men each with a ¾ inch hose. Cost about \$300. We have been preparing our stock solution as follows:

Use a clean 50 gallon barrel. Dump 75 lbs. of 25-0-25 (Kapco) and 25 lbs. of ammonium nitrate into the barrel. Then add water enough to fill the barrel. This will make 50 gallons of stock solution—at roughly 2 lbs. of dry fertilizer per gallon of water. If nitrates tend to run too high on soil tests, omit the ammonium nitrate. Use 100 lbs. 25-0-25.

If pH runs too high, use ammonium sulfate instead of ammonium nitrate.

During the brighter seasons of the year, most of the waterings our Mums receive (both pot and cut flower) have been with this dilute fertilizer. They are actually fed 2 or 3 times weekly. With very little exception, this procedure has maintained the nutrient levels in our soils within the limits prescribed above. Phosphorous is supplied in adequate

amounts by the once a year addition at sterilizing time. Calcium the same. If nitrogen, for example, tends to run too high on a series of soil tests, the stock solution can be varied to correct this.

Actually, we combine this automatic feeding device with automatic watering—with the Hoseboye reel type watering machine. The Hoseboye inlet hose is fastened onto the fertilizer line. The machine does the feeding and watering—leaving the grower free for other tasks. Liquid fertilizer injection can, of course, be teamed up similarly with most other automatic watering devices.

There are various other types of mechanical equipment available for fertilizer injection. Many are of the non-proportioning type—somewhat less expensive. For more on this type of equipment, see GROWER TALKS, September, 1955, page 14. In the May 1954 issue, page 5, will be found full directions for use of all common fertilizers in liquid form—dilutions, etc.

Many good growers feed Mums in dry form. Here are materials commonly used, strength, rate of application:

Nitrogen Carriers	Rate of Application
Ammonium sulfate (20% nitrogen)	1 lb. per 100 sq. ft.
Ammonium nitrate (30% nitrogen)	½ lb. per 100 sq. ft.
Sodium nitrate (15% nitrogen)	1 lb. per 100 sq. ft.

Phosphate Carriers	
Superphosphate 20% (20% phosphate)	5 lbs. per 100 sq. ft.
Superphosphate 40% (40% phosphate)	3 lbs. per 100 sq. ft.

Potassium Carriers	
Potassium sulfate (48% potash)	1 lb. per 100 sq. ft.
Potassium chloride (48% potash)	1 lb. per 100 sq. ft.

Miscellaneous	
Calcium sulfate (gypsum) furnishes calcium but does not raise pH.	5 lbs. per 100 sq. ft.
Calcium oxide (ground limestone) to raise pH of soils	2 to 4 lbs. per 100 sq. ft.
Wettable sulfur—to lower pH of soils	1 to 3 lbs. per 100 sq. ft.

There are, of course, complete fertilizers in dry form. Such materials as Vigoro, Armour's Florist's Mixture, etc. are much used. Generally they carry an analysis of around 5-10-5, in some cases higher in nitrogen. In the absence of any tests, a Mum crop that seems to need fertilizer will normally need several applications of this type of material, around 2 lbs. per 100 sq. ft. each time, starting soon as the plants are in active growth.

Some Cautions on Feeding

First, as any grower experienced in the northern dark winter country knows, both feeding and watering must be drastically reduced during dark weather. As a very general guide, Mums on a ground bed in midwinter will need perhaps 1/5 as much of both fertilizer and water as the same crop in midsummer. Of course, the crop should not be allowed to wilt—nor should it be starved for nitrogen. But it will need so much less of both water and feed during the short sunless days of January that, with reasonable care, this shouldn't happen.

In general, fertilizer should not be applied to a dry soil. Better water lightly first, feed, then soak well.

A problem sometimes associated with feeding (overfeeding) is an excess of soluble salts in the soil. We are concerned here with an excess of the **total of all soluble salts** in the soil. The soil solution simply becomes so concentrated that roots cannot take up moisture. Solu-Bridge readings will indicate quite accurately whether total salt concentration is too high. Where do these salts come from? Usually



Godfrey Franc, well-known Carnation, Mum, and Rose grower of Englewood (Denver), Colorado. Godfrey has gone over to liquid feeding, likes it. Here's the Fert-O-Ject unit that he is using. It is a proportioning device which will inject concentrated fertilizer from the barrel (left) into the greenhouse water supply in proportion to the amount of water used. Cost in the \$400 range. Source: Emsbach Greenhouses, 4511 W. 27th Ave., Denver 12, Colorado. Godfrey is well known for the top quality of his Roses, Carnations, and what ever he grows for that matter, is turning out the same top results now with his new year round Mum program.

from a very hard water that constantly adds salts and from heavy fertilizing. Cure: leaching 3 to 5 gallons of water per sq. ft. If the problem is too serious it may be more practical to change soil.

DIRECT BENCH CUTTINGS!

It gives so much more rapid growth than any other way of handling them—and it's so much less work besides. We have direct benched nearly all of our Mums for several years; losses even in hot weather have been negligible.

However, it's one of those operations that must be done right. The rules are simple, easy to follow, but failure on any important point can mean real loss. Here are the "rules" that we follow.

Nutrient levels must be low to medium, especially nitrogen and potash. Too high levels will burn roots; too low starves the plants. Occasional Solu-Bridge tests will tip you off to excesses of salts. Tender roots of new cuttings aren't very tolerant!

Peat. Soil should not be hard! We add 10 to 25% by volume yearly. Other kinds of humus are O.K. if free of harmful salts, etc.

Steaming. We have for several years made it a rule to **steam all beds the day prior to benching of cuttings.** Many other growers follow this practice on Mums and other crops. Where peat has been applied and where salts are at reasonable levels, it will work almost 100%. Somehow the cuttings take off exceptionally well in the newly steamed soil—even if it's still warm.

Under some soil conditions, if soils are steamed just before benching, and if hot weather follows, certain "after steaming" troubles appear. Usually it's a build-up of ammonia that appears 3-4 weeks after steaming. It burns

ON GROWING GOOD MUMS

roots, can even kill plants. Best suggestion where this is encountered: Steam all benches just prior to benching except those benched in summer. These beds may be left unsterilized—or may be treated with Terraclor (75% wettable powder) at 1 to 1½ lbs. per 1000 sq. ft. of soil. The material is raked into the top 2 inches of soil just before planting cuttings. It helps especially in control of Rhizoctonia (root rot).

Bone dry soil. Tender roots of new cuttings planted in bone dry soil will wither and die. Soil must be medium moist.

Plant shallow. Mum cuttings must be set just as shallow as possible. Even if a few are knocked over by the first watering, they can easily be set up again. Setting the root ball down 2 to 3 inches deep will guarantee a slow start—and often trouble with rotting of cuttings. Firming soil before planting helps keep 'em shallow.

Watch your planting crew. It's so important!

About misting. Where cuttings are direct planted in hot weather, it is very important that they be misted—sprayed overhead lightly—3 or 4 times on the first few days. Keep the foliage moist.

Cold storage of cuttings. If cuttings have been stored at a low temperature, be sure to warm them up gradually—12 hours at room temperature is best—before setting them in a hot greenhouse. Incidentally, storage, even under ideal conditions, doesn't improve a cutting. Plant just as soon as possible after receiving the cuttings! If they must be stored, do so as near 32-36° as possible.

Exposure of roots. Those little rots on a cutting are delicate. Five minutes exposure to strong sun will wither them. Watch planting crews to be sure they don't take a lot of cuttings out of the boxes, lay them out along the bench for the planters. It can spell disaster.

Plant a good cutting. Whether it's Mums or Carnations or what have you, it's hard to make direct benching work unless the cuttings are good ones. That means 4 to 6 inches long, husky yet succulent (brittle), roots 1 to 1½ inches long. A weak cutting just won't make it.

PINCHING—AND TIME PINCHING

Time pinching simply means pinching plants on the pinch date given in this catalog. See variety lists. To have normal (fall) Mums ready to pinch on the catalog pinch date, plant cuttings about two weeks prior to that date. Then pinch on the date given in this guide.

Pinching on the correct date generally assures pompons with good, open spray formation. Standards pinched on the correct date will not usually throw crown buds—thus eliminating dog-leg necks.

Single stem: ordinarily produce good spray formation if cuttings are planted on the catalog pinch dates.

Softly, Please

You'd be surprised how much better results you'll get by just pinching out the top ¼ to ½ inch. Pinching down hard means that new shoots must come from old, hard wood.

SUPPORTING THE EASY WAY

One layer of wire-cross strings will support any ordinary bench of pompons or standards. The one layer must be moved up every week or two, but if properly set up it takes only minutes.

Better than this, though, is the use of wire mesh. Already in general use among western and southern Mum growers, it seems to be quite practical. Between crops it is raised overhead out of the way for plowing, etc.

Wire mesh eliminates

1. Unrolling and stretching individual lengths of wire;
2. Winding them up after the crop;
3. Stringing, too!

CLOTH HOUSE ANGLES

Top quality pompons are flowered under cloth from August 1 into October—if frost protection is available. Pointers:

1. Schedules—the regular tables apply.
2. Diseases are something more of a problem than under glass. The preventive spray outlined on page 57 will keep them clean ordinarily, though.
3. Cloth. Cotton or Aster cloth is more effective in keeping leaf hoppers and small insects out than plastic (Saran). The Saran is more expensive but will last many seasons.

If Saran is used, specify amber—not the green. The green makes too much shade—reduces production.

4. Cloth house construction—for full details see our BALL RED BOOK, Ninth Edition, page 96.

Varieties

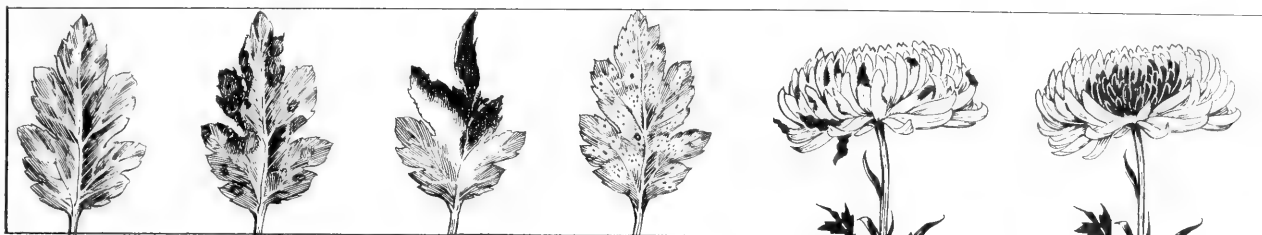
Based on a cross section of cloth house crops across the Mid-west and East this past fall, here are the topnotchers:

Whites: The top four here are definitely Encore, Whitetop, Iceberg and Pristine. Encore is pure white and lovely when well done, but has some tendency to shy breaking after the pinch; best up to late September. Whitetop looks very promising especially after September 10. Pristine is definitely tops for earlier (up to mid-September), pure white and a good shipper; production about average. Iceberg is newer—and very promising.

"Also ran" in whites: Shasta (tops if you don't ship), Alaska, Belray (beautiful, but some petal spot), White Popcorn, Keepsake, Pinocchio. Good daisies: Freedom, Pacesetter. **Yellows:** The four heavyweights here: Gold Coast, Yellow Beauregard, Golden Chord, and Forty-Niner. Gold Coast is the bread-and-butter yellow especially for early flowering. Yellow Beauregard looks very good clear through the season. Golden Chord and Forty-Niner are definitely tops for later (after mid-September.)



The one sure way to control thrip, spider, and petal blight—on outdoor Mums, especially in warm, damp weather. All beds on the above crop (Florida) are sprayed daily from the time color shows until the crop is cut with Dieldrin and Parzate under very high pressure. Just over the tops of the flowers.



Common mum diseases, from left: Normal leaf, septoria leaf spot, foliar nematode, puccinia (rust), botrytis (petal rot), and ascochyta (petal blight). The petal rot is an especially common problem. Control: partial shade, ventilation and heat to keep petals dry, and spray over flower tops as often as every several days from the time color shows with Parzate, 1½ oz. per 10 gallons, plus spreader. It can be stopped.

Other good yellows: Yellow Shasta, Jealousy, Sunup, Golden Herald, Lollipop. Good daisies: Aztec, Starbright.

Pinks: Bluechip and Portrait clearly dominate the pinks. Bluechip used more than Portrait except for later (Oct.). Excellent bright colors, large flowers that ship well, good producers.

Other pinks: Masterpiece, Taffeta, Bonnie, Almaga, Pen-nant, Memorial. Daisies: Reward, Mayfair.

Bronzes: The "big four": Rubicon, Beauregard, Thelma, and Magician. Rubicon and Beauregard are both excellent more or less throughout the season. Thelma is a wonderfully warm color and especially good after late Sept. Magician, a newer one, shows great promise for October. Jetfire is a topnotch fiery red pomp.

Other good bronzes: Rusticon, Bronze Pandora (new, a fine warm color, but only after Sept. 15), Chevron, Bronze Minuet, Paragon (after Sept. 20). Good daisy: Buckskin.

SHADE ON THE GLASS?

Opinions among growers do vary plenty here!

Our own experience has led us to these conclusions:

1. The less shade, the better as far as growth, production, quality of Mums (or Snaps, or Carnations) are concerned.

2. Standards flowered during the hot summer months will usually show petal rot or burn unless shaded fairly heavily (during flowering only)—and given regular Parzate spray. Muslin or Aster cloth stretched above beds in flower doesn't seem to do as much good as actual shade on the glass—although a combination of light shade on the glass plus cloth over the bed is often used.

3. We have **not** been shading newly planted cuttings. It seems unnecessary if they are sprayed overhead lightly several times daily till established.

4. There are times when it just gets so hot under glass that if you expect people to stay in there and work, you have to put a light shade on. It does help cut down watering. And it reduces temperature under the sateen covers in late afternoon.

5. Pot Mum specialists who flower through the summer months generally carry a light shade.

6. Tests at Michigan State College showed that ordinary Aster cloth (46% light reduction) cut production very substantially on greenhouse Pompons. **Different varieties produced from 10 to 55% less bunches per foot under the cloth compared to full sun in the greenhouse.** Makes you want to **not** shade!

7. If shade is applied it should be light enough so that at least 5000 to 5500 foot candles of light comes through on clear afternoons. Use a meter! GROWER TALKS, July 1956 for source, etc.

TAKING THE BUD

Which bud to let flower on big Mums?

Now that we grow Mums on definite schedules, this too can be reduced to simple rules.

The rule: If the crop is planted and pinched on or near the recommended dates, flower the first bud that appears. In other words, as soon as a bud of any kind appears, remove all side shoots and let the center bud flower.

Crowns and Terminals

Under long summer days (14 hours) a Mum will remain "vegetative"—will produce "blind" growth tips free of buds. As the days gradually shorten towards fall, the Mum becomes "reproductive"—and produces a cluster of flowering buds at the growth tip.

When a plant is physiologically midway between vegetative and reproductive growth, it may produce a so-called **crown bud**—a single flowering bud surrounded by blind or vegetative shoots. It might be called a half hearted flowering bud—produced by a plant not yet fully reproductive.

As days shorten still further, the same plant will become fully reproductive and produce a **terminal bud**—cluster of flowering buds.

Some of these half way vegetative crown buds can be left on and will make good flowers, some can't. You can't tell by looking at them. The point is that if the crop is planted, pinched, and grown according to recommendations, even though a crown might appear, it will almost always be a "good" one. Hence our recommendations to flower the first bud that appears—crown or terminal.

The rule applies to both normal and off-season crops.

A possible exception

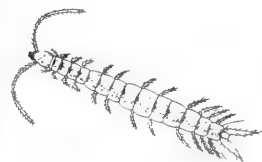
Under certain conditions of day length, temperature, etc., some varieties of Mums (or Pompons) can produce a crown bud 3-4 weeks or less after planting. Such crowns produced while the plant is less than 18-20 inches tall, we remove and allow one vegetative side shoot to grow on.

TWO COMMON MUM PESTS

Actual size: ⅓ inch.

Found in soil, usually around roots. If Mums seem checked, growing slowly, yellow leaf edges; dig a few feet of the poorer plants. If you see these little white fellows running for cover, you've got symphylids! They chew at root tips.

For control see page 57.

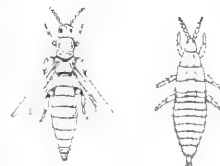


SYMPHYLIDS

Actual size: ⅓ inch.

Usually pale green, sometimes darker brown. Infest foliage and open flowers; cause general browning of blooms, especially in warm weather. Flowers must be picked apart and examined carefully with hand lens to find them.

Preventive program, page 57. DDT especially effective.



THRIP

ON GROWING GOOD MUMS

On normal season standards, a crown that appears earlier than these dates, is best removed:

Varieties that flower	Remove crowns that appear before
Oct. 15-Nov. 5	Sept. 5
Nov. 5-30	Sept. 25
Dec. 1-15	Oct. 5

TEMPERATURES FOR YEAR ROUND MUMS

Year round mums in the northern greenhouse especially, are a crop which must be kept within closely controlled temperatures. Perhaps they are "fussier" than other crops in this respect. Under some conditions, a bench grown 5° too low will result in complete failure to set buds. Some crops some seasons held 5° too high will set buds, but will either delay flowering or simply fail to develop the buds into flowers at all. We have seen benches fail to flower because of both too cool and too warm temperatures. These failures are, in our experience, 90% from too warm temperature, 10% from too cool.

A General Rule

For either poms or standards in northern greenhouses, the following temperatures during firing season are recommended:

Nights	60°
Cloudy Days	60°
Sunny Days	65°

These temperatures are warm enough to set buds on all recommended varieties, and cool enough to insure development of buds—and good keeping quality, substance, etc.

No one holds temperatures exactly. If a mum crop is held within 2° either way of the above temperature it's close enough—if it's not consistently 2° the same way. Likewise on occasional sub-zero night may make it impossible to stay above 50° for a few hours. No harm if it just happens a night or two or three a year. The temperature effect is cumulative.

Pot mums should be held at a night temperature of 65°, cloudy days 65°, sunny 70°. See pot culture, page 80.

The Problem—Excess Heat

At least 90% of the temperature troubles on year round mums, in our observation, result from running houses too warm. Much of this is actually the result of excessively high day temperatures. In some cases, a tendency is carried over from other heat loving crops to run sunny day temperatures up to 70-75° or even higher. Result, especially on the 12 to 15 week poms (used in winter): either serious delay in flowering, or complete failure of buds to develop. Each spray of poms will produce compound sprays—20 to 30 buds per stem, none of which ever open. It's a mess!

Too warm winter temperatures will delay standards too, but not as noticeably. However, running winter-spring standards too warm will result in small flowers, poor substance and keeping quality.

One aid in solving this problem of too warm temperatures on winter mums is use of recording thermometers. At a cost of about \$50.00, such a unit provides a continuous written record of temperatures night and day. It help the grower to see how well he is holding temperatures, helps focus attention to this all-important problem.

A Suggestion

If in doubt as to whether a crop of mums or poms is being grown too warm, try this: nearly all houses tend to be warmer on one end or the other. Placing thermometers every 25-50 ft. down the house at night will verify this. Study the plants on the warm end. On typical winter pom heat delay, the warm end plants will be later flowering (heat delay), taller (again because of the delay), and of inferior flower size. In some cases, the warm end may fail to flower entirely. Pink varieties fade on warm ends.

Light Leakage

There have been a few cases where light "leaking" onto

the crop by accident from some nearby source in effect delayed flowering of a crop. Effect is not too much unlike heat delay. The tip-off nearly always is the area affected. Plants nearest to a window of a nearby home—light shining out at night—or in some cases, lights used on main walks by night men.

Cooling Crops in Flower

So far we have assumed that all crops are held at the same temperature from planting to flowering. This is the way most crops are grown.

Actually some additional size and substance can be gained by lowering temperatures gradually (3° every 3 days) to 55° night and cloudy days, 60° sunny days—after color shows. It can even be lowered to a straight 50° the week or so prior to cutting of flowers—but not before.

This is possible only where a full house is flowered at one time—or when suitable partitions can be arranged.

It helps!

Some varieties will set buds at 55° nights. As more such kinds become available, it will become possible on "one temperature programs" to hold a straight 55° night-cloudy days, and perhaps 60° sunny days. Some varieties in this guide are marked "will set bud at 55°," or 54°, or 56°.

ABOUT COOLING GREENHOUSES

The new method of "fan-pad" evaporative cooling of greenhouses in summer is, in our observation, one of the major developments in greenhouse production of our generation. The first trial installation was made at Novak's, Ponca City, Oklahoma, in June 1954. Today just two years later, the bulk of the glass in the Southwest and in Colorado is cooled. Further, there are dozens of installations, some small, some large, across the Midwest and East. This in itself speaks volumes as to what growers think of cooling.

In mum production, it solves the summer heat delay problem which at first stopped summer production of both cut and pot mums, especially in the Southwest. It enables growers, even in the very hot summer areas, to produce excellent quality mums—and at a time when the demand is very good. Indications as to its effect on Carnations are equally promising.

Midwestern and eastern growers ask: "How will it work in our relatively high humidity?" Most of these "northern" growers are sold on the merits of cooling—if it will work reasonably well in their climate.

Our own experience (at West Chicago) with pad cooling is at least an indication of what can be expected. This past spring we installed pads and fans on about 30,000 ft. of our glass here. Several important improvements over our last summer's trial installation were made—more water on the pad, better pad support, etc. Here are several sample readings we obtained (June '56) with this improved installation.

	Average Summer Day, Moderately Warm Moderate Humidity	Warm, Dry Summer Day, Humidity Be- low Normal
OUTDOORS		
Temperature	89° (3 P.M.)	90°
Relative Humidity	52%	33%
COOLED HOUSE		
Temperature	79°	72°
Relative Humidity	80%	74%
CHECK HOUSE		
Temperature	94° ¹	90°
Relative Humidity	54%	36%

All temperatures taken with glass rod thermometer (no metal back), held in shade. See GROWER TALKS, Sept. '56, page 21.

1. Temperature in check house with top and side vents open, and a fair breeze is normally very near outside temperature. This reading made on quiet day, little air circulation, hence high temperature.

To Predict

—how much cooling can be gotten with a given amount of humidity, there is a simple formula. It requires that wet and dry thermometer readings be taken, preferably with

a Sling Psychrometer (Taylor Instrument), 95 Ames Street, Rochester, N. Y. Available locally.

The rule: temperature of air entering the greenhouse just inside the pad will approximately equal dry bulb temperature minus 80% of difference between wet and dry bulb.

An example (outdoor condition the day of the June 9 test listed above):

Outdoor dry bulbs, 90°

Outdoor wet bulb, 67°

Difference between wet and dry bulbs: 23°

80% of 23° equals 18.4°

90% of 18.4° equals 71.5°

Actually the air entering was some cooler than this 71.5°—it was 67°.

Some allowance must be made for heating of air as it crosses the house—as will be noted in the tables above.

A few readings of this type made under your own conditions of temperature and humidity would give a good picture of the benefits you could derive from cooling.

Sources, Cost, etc.

To install pad-fan cooling, including all labor and material, averages 12 to 16c per sq. ft. of ground area (not bench area) covered. Costs vary, mostly with labor.

Operating costs are nominal, depending on electric rates a good bit. We figure about 10-12c per hour for electricity for a 24,000 sq. ft. range—plus depreciation of equipment, annual replacement of pads.

Sources: There are many! Here are several growers who are also dealers in this equipment, and who should be well qualified to help engineer installation.

- | | |
|--|--|
| 1. Furrow & Co.
North Broad St., Box 545
Guthrie, Oklahoma | 3. U. L. Patterson
P. O. Box 187
Shelby, N. Carolina |
| 2. Stuppy Floral
625 Francis Street
Saint Joseph, Missouri | |

Further details on cooling: write for our booklet on the subject. No charge.

LIGHTS—WHY AND HOW

The Chrysanthemum is a "short day" plant. That means it will set buds when it is exposed to a short (12 hours or less) day. Mums naturally flower in the fall because the days are shorter.



Here's concrete proof that excessively high night temperatures will delay development of Mum buds. The two pots of Gold Coast on the right were started together. The one on the right was moved to a constant temperature room of 62-65°F each night from the time short days were started. Note that it is perhaps 7-10 days earlier than the one on the left, which was in a hot greenhouse at night in July and August. Same procedure followed on the two pots of Revelation (left); buds on the pot with cool nights were notably better developed than those on the check but no buds developed to flowering. The night temperatures above 62°F prevented the buds of the thermonegative variety Revelation from developing. Above test part of work at Penn State University under Dr. John Seeley shown above.



Late May and June 1956 brought scorching weather to the Midwest. Most greenhouse pompons by June were seriously delayed, many were a partial loss. Weiland Brothers, George (left) and Francis (Buxx) had the above house under fan-pad cooling at this time. The White-top shown above was a sample of the excellent quality that resulted. This house was a mighty convincing argument in favor of cooling to the many Mum growers who saw it flower.

With this in mind, it is apparent that a cutting planted in midwinter will promptly set bud—due to the very short day length. To delay this bud setting until sufficient stem length develops, we extend the length of the natural day with artificial light (technically, we shorten the night rather than lengthen the day). **Buds will not form on Mums as long as the periods of uninterrupted darkness are not over 7 hours long.** The tables that follow are designed to provide enough light under all conditions to prevent bud set.

How to Light (with separate reflectors) Height

	Watt	Spacing	above soil
One 4 ft. bed	60	Every 4 ft.	60 inches
Two 4 ft. beds	100	Every 6 ft.	60 inches
(One row of lights)			
Three 4 ft. beds	150	Every 9 ft.	60 inches
(One row of lights)			

Reflectors must be held up off the bulb. Built in reflector bulbs may be used. For a 20 ft. wide house, a single row of 300 watt reflector bulbs facing down at a 45° angle, spaced every 10 ft. will do it. Bulbs should be staggered on alternate sides of ventilators—not directly under because of rain damage to bulbs. Figure about 1½ watts per square foot of ground covered. Indoor type bulbs may be used if covered with metal protectors to keep water out. Use flood, not spot bulbs.

It takes 7 foot candles to prevent bud formation.

On large installations, half the area may be lighted before midnight, half after. This halves the demand cost.

230 volt lines reduce main sizes greatly.

HOURS OF LIGHT PER NIGHT

Latitude 35-45°	Latitude 25-30°
North of Charlotte, N. C.;	Dec. 1-Jan. 31 .....4½
Memphis, Tenn.; Bakers-	Feb. 1-28 .....4
field, Calif.	March 1-31 .....3
July 15-Aug. 1.....1	April 1-30 .....2½
Aug. 1-31 .....2	May 1-31 .....1½
Sept. 1-Oct. 31 .....3	June 1-July 31 .....1
Nov. 1-30 .....4	Aug. 1-31 .....2
Dec. 1-Jan. 31 .....5	Sept. 1-30 .....2½
Feb. 1-28 .....4	Oct. 1-31 .....3½
March 1-April 30 .....3	Nov. 1-30 .....4
May 1-31 .....2	

ON GROWING GOOD MUMS

The above hours of light should be provided as near the middle of the night as possible. For example, if 4 hours of light are called for, light should be turned on from 10 P.M. till 2 A.M. If the lights were turned on from 6 P.M. till 9 P.M., there would be a period of darkness from 9 P.M. till 7 A.M. (in winter)—which would total 10 hours. The maximum allowable period of uninterrupted darkness to prevent buds is 7 hours.

Likewise, if half the beds are lighted before and half after midnight, be sure to apply both periods as near midnight as possible. For example, lights from 8 P.M. till midnight (4 hours) leaves a period of darkness from midnight till 7 A.M.—just within the allowable 7 hours.

SHADING DETAILS

Why do we shade?

The Chrysanthemum plant will set bud only if exposed to a short day (not over 12 hours)—and to a temperature of 60°. We, of course, artificially shorten the day when necessary by means of black sateen.

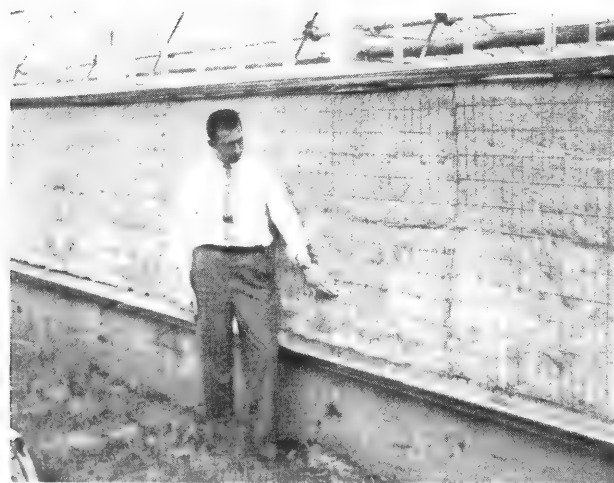
For years it was common practice to apply sateen cloth in late afternoon—just before closing time. Often this meant that the first covers went on as early as 4 P.M.—which is 3 P.M. by standard time. Applying shade for longer than 12 hours per night is definitely harmful to the crop. First, if shade is put on at 4 P.M. during hot weather, it will become very warm under the covers, thus further aggravating the hot weather delay problem. Even during cooler periods, this mid-afternoon shading has a light reduction effect—much like carrying a heavy shade on the glass, only worse. Result: substantially reduced production, flower size, etc.

We therefore strongly recommend not applying shade till 6 or 6:30 P.M.—and leaving it on to provide 12 hours of darkness to all beds. It may cost overtime to get it done in the evening, but it will be worth it—in our experience.

Dates to Start and Stop Light and Shade

Latitude 25-35°

Response Group	Lights		Shade	
	Start in Fall	Stop in Spring	Start in Spring	Stop in Fall
7-8 Weeks	Continuous		March 29	Sept. 20
9-11 Weeks	Continuous		March 15	Oct. 1



Shown above, the pad installation on part of our year round Mum range in West Chicago. Standard Mum flowers here in June-July '56 were generally up to spring quality compared to serious delay and flower size reduction and considerable petal burn that occurred the year before without cooling. Shown above, Jack Stinson of our Mum Planning Service.

Latitude 35-45°

North of Charlotte, N. C.; Memphis, Tenn.; Bakersfield, California.

Response Group	Lights		Shade	
	Start in Fall	Stop in Spring	Start in Spring	Stop in Fall
7-8 Weeks	July 15	May 30	March 25	Sept. 8
9-11 Weeks	Aug. 1	May 30	March 10	Oct. 1
12-14 Weeks	Aug. 25	May 30	Feb. 25	Oct. 20

INTERRUPTED LIGHTING

A means of opening up clubby sprays on pompons, and doubling up standards that tend to show center in winter. Big trouble so far is that more or less each variety must be "interrupted" on a schedule worked out to suit that variety. Under commercial conditions where half a dozen or more varieties are grown under the same lighting schedule, it is generally impractical to interrupt—for the reason outlined above. Interrupting January-February standards (especially Indianapolis) comes the nearest to being a practical deal as any attempts we have made thus far—but we feel we need more experience before making definite suggestions.

Write if interested.

COLORS AND VARIETIES

First, what percent of pompons and standards?

The Southwest and California lean more to standards at all seasons. For Midwest and East:

	Jan.-April	May-Sept.	Oct.-Dec.
% Pompons	40	50	40
% Standards	60	50	60

Color percentage of Pompons

	Jan.-March	April-May	June	July-Aug.	Sept.-Oct.	Nov.-Dec.
% White	50	55	60	45	35	40
% Yellow	30	30	30	45	35	25
% Pink	15	15	10	10	5	10
% Bronze	5	—	—	—	25	25

Note: Southern markets seem to prefer less white.

Color percentage of Standards

	Jan.-March	April-May	June	July-Aug.	Sept.-Oct.	Nov.-Dec.
% White	60	55	50	55	35	40
% Yellow	30	30	45	45	40	30
% Pink	10	15	5	—	5	10
% Bronze	—	—	—	—	20	20

Varieties—hundreds of 'em!

Certainly no room to discuss them here. We've flowered nearly 500 in our continuous flowering test program. You'll find our recommendations for each season in the tables starting on page 61. Also, if you're going through Chicago, stop in and see the new ones in our trials—at any period.

SINGLE STEM OR PINCH?

Where time permits, we recommend pinching fall or normal crops. While there is some advantage in spray formation, generally improved and more even growth, we don't feel these improvements warrant the added cutting cost of single stem crops.

Nearly all year round or continuous flowering programs are operated on a single stem basis. Main reason: it enables the grower to realize an extra crop a year from about half the benches on a program.

Even beyond this, though, there is a certain vigor and quality of growth on the direct benched unpinched crop that's hard to get where pinching is practiced. This is especially apparent on winter-spring crops.

CONTINUOUS FLOWERING SCHEDULES

Actually most off-season Mum growing is done on so-called year round flowering programs. A given area, usually not less than 6-8 benches, is put on a continuous rotation, each bench producing 3 crops during the year. Thus, an 8 bench house would produce 24 benches of flowers each 12 months. The advantages of steady cut, steady return, and even work load are obvious.

Because such programs are nearly always tailor-made to fit local conditions, none are included here. If interested, write our Mum Planning Dept. for details. (See inside front cover).

ABOUT SPACING

For normal season pompons where a uniform quality spray is desired, space 6 x 7, prune to 2 stems per plant, 3 on outside rows. This will give very few culls and you'll be averaging 6 stems per 9 to 10 ounce bunch.

Some growers space 7 x 8 or 8 x 8 inches, prune to 3 (outside rows, 4). This gives more culls, less uniform cut, a few more stems per foot.

Two stems per plant can be grown on roughly the same area **per stem** as one. Example: for late summer pompons we recommend 5 x 8 in. for two per plant (20 sq. in. per stem) or if single stem, space 5 x 4 in.—also 20 sq. inches. Where three stems are grown per plant, add roughly 10% to the amount of bench area per stem. Reason: three stems sharing the same root system!

Our recommendations for year round flowering under reasonably favorable conditions (for no pinch culture):

Crops to Flower	Spacing	Sq. Inches per Stem
Jan. 1-March 15	7 x 4 in.	28 sq. in.
March 15-June 1	6 x 4 in.	24 sq. in.
June 1-Oct. 15	6 x 4 in.	24 sq. in.
(Note: Where a medium weight spray of pompons is wanted and with more production per bed, many growers go to 5 x 4 in. especially from July thru September.)		
Oct. 15-Jan. 1	6 x 4 in.	24 sq. in.

BASIC SPRAY

Starting 10-12 days after planting cuttings, spray weekly in summer (less in winter) with the following solution, discontinuing spray when color shows.

Per 10 gallons water

2 1/2 oz. Parathion 15% wettable powder	red spider, foliar nematode , aphids, midge, thrip, various leaf chewers, mite.
1 1/2 oz. DDT, 50% wettable powder	thrip , midge, sow bugs, leaf rollers, pill bugs, leaf hoppers, white fly, tarnish plant bugs.
1 1/2 oz. Wettable sulphur (powder)	powdery mildew (may be omitted where mildew is not present)
2 1/2 oz. Fermate	Septoria leaf spot, rust, (general fungicide)
Dreft (or other spreader)	Spreader

WE ACKNOWLEDGE

With thanks the substantial help afforded us in preparation of this 1957 BALL MUM GUIDE both by our floriculture schools, and by the major propagators.

INSECT-DISEASE CHART

The very excellent chart on pest and disease control (on pages 58-59) is from the Ohio Florists' Assoc. Bulletin #318. The notes below and on page 60 gave detailed dilutions, etc. on the materials recommended on the chart.

General

Add spray materials to a small quantity of water, mix thoroughly, then pour in full spray tank with agitator in motion. Warm bombs to 70° to 90°F. before using and observe precautions printed on the label. All bombs will treat 200,000 cubic feet. Greenhouse should be 75° to 90° and the soil should be moist enough so the plants won't wilt at this temperature range.

INSECTICIDES

Aramite

Very effective for normal and resistant red spider mites. Use 1 1/4 to 1 1/2 pounds of the 15% wettable powder per 100 gallons with a spreader. Thoroughly cover all leaves. Can be used in the presence of sulfur and is compatible with Captan, Fermate, or Mildex. May cause discoloration of petals on some roses. Trade names are Aramite, Orthomite, and Niagaramite.

Technical (very pure) liquid Aramite can be painted on steam pipes at 8 oz. per 100,000 cubic feet. Close vents overnight. Repeat every 5 days.

Chlordane

Particularly useful for ants, grasshoppers, and cutworms.

The 50% wettable powder is used at 1 pound per 100 gallons in the greenhouse and 2 pounds per 100 gallons outside. Also available as a 5% dust. A trade-name material, Snailicide, contains metaldehyde as an attractant and is very effective.

Chlorobenzilate (Geigy 338)

Useful for control of resistant red spider. Use 1 pound of the 25% wettable powder per 100 gallons with a spreader.

DDT

Controls thrips, leaf-roller, and other leaf-eating pests, sowbugs, pill bugs, mum and rose midge, leaf-hoppers, white fly, tarnished plant bug, and other less common pests. The 50% wettable powder is used at 1 pound per 100 gallons under glass or 2 pounds per 100 gallons outside. A spreader reduces effectiveness of DDT. Oil sprays of DDT contain materials that may cause damage. DDT also available as a dust. For soil pests apply DDT dust several times 30 days apart. Kalanchoe, Crassula, and other succulents may be injured seriously unless the purified grade of DDT is used.

Dieldrin

Useful for thrips, grasshoppers, spittlebugs, and certain soil pests (grubs, etc.). Use 1 pound of 25% wettable powder per 100 gallons with a spreader.

PEST and DISEASE CONTROL CHART

From Ohio Horticultural Association Bulletin #348, March 1956

If we were to recommend one bomb and one spray material for general use in 1956, they would be the Dibbio bomb and Malathion spray. Both will control red spider, aphids, thrips, scale, and mealybugs. More specific controls are given below.

PEST	CROP	CONTROL MEASURES	REMARKS	PEST	CROP	CONTROL MEASURES	REMARKS
Red spider (normal)	Any	Aramite, Chlorobenzilate, Kelthane, or Malathion spray. Parathion bomb, spray, or dust.	Technical Aramite vaporized from steam pipes every 5 days. Causes leafdrop on roses if sulfur is present. May bleach open mums.	Corn ear worm	Chrysanthemum	DDT bomb, dust or spray.	This pest eats the flowers.
		Aramite, Chlorobenzilate, Dithio, Malathion, or OMPA bombs. Systox on soil.	Sometimes vary in their effectiveness. Fumes very poisonous.	Ants	Any	Chlordane or Dieldrin.	Snailicide containing metaldehyde best control for slugs, snails, and cutworms.
Red spider (phosphate resistant)	Any	Dithio bombs; Aramite bomb, spray, or vaporized from steam pipes; Chlorobenzilate spray or bomb.	Alternate materials to avoid quick build up of resistant population.	Leafminer	Aster, Azaleas, Chrysanthemum	Parathion spray, OMPA bomb, or Systox on soil.	
Red spider (Aramite resistant)	Any	Alternate Dithio and Chlorobenzilate bombs; Chlorobenzilate-OMPA bomb every 5-7 days.	Alternate materials. Chlorobenzilate — Meta Systox bomb useful.	Foliar nematode	Chrysanthemum, Xmas Begonia	Use leafminer controls.	
Scale	Any	Malathion spray. Dithio bomb.	Repeated applications necessary. 3 times at 3-5 day intervals — kills crawlers only.	Mite	Begonia Cyclamen English Ivy Gloxinia St. Paulia Snapdragon Foliage plants Others	Endrin.	Very effective.
Thrips	Any	Dieldrin, Lindane, Malathion, or DDT dust or spray. Dieldrin or DDT dusts.	Parathion in any form also useful. Cover lightly before storing.	Rose midge	Rose	DDT spray, Three applications on plants, soil, and waits 12 days apart.	Pinch and destroy heavily infested shoots.
Mealybugs	Any	Malathion spray, Dithio bomb, or Parathion as bomb, spray, or dust.	With any of these, repeated applications necessary.	Strawberry root worm	Any	Dieldrin or Lindane.	White frothy "spit" identifies this plant stinging pest.
Aphids	Any	Malathion spray, Lindane dust or spray, Dithio bomb, Parathion as bomb, spray, or dust.	OMPA bomb or Systox on soil also useful but are slower to act and have longer lasting effect.	Fuller's rose weevil	Any	Lindane, 1 oz. of the 25% wettable powder per 30 gallons.	Apply like a liquid fertilizer.
Leaf roller	Any	Parathion bomb, spray, or dust, as well as DDT dust or spray.	Malathion effective on leaf rollers.	Symphyliids	Any	Lindane — see root aphids. For bench crops use 1 oz. per 100 sq. ft.	One treatment often effective for a year.
Sowbugs				Earthworms	Any	Chlordane or DDT on soil.	Steam sterilize when possible.
Mum midge				Root nematodes	Any	Steam sterilize soil and pots.	Steam bench area where infested plants grow.
Leafhopper						Dow MC-2 or Iscobrome.	Contain methyl bromide.
White fly						Tear gas, Larvacide.	Injures living plants.
Tarnished plant bug							

DISEASE	CROP	CONTROL MEASURES	REMARKS	DISEASE	CROP	CONTROL MEASURES	REMARKS
Damping-off	Any	Pano-drench (as directed) Arasan, Fermate, Zerlate, Parzate, Captan, Terrachlor, or Semezan. Steam sterilize soil and pots. Avoid recontamination.	(Except Pano drench) — 1 tablespoon per gallon and flood affected area. Dust seed lightly. Don't injure stems of cuttings or seedlings when potting or planting.	Canter	Camellia	Remove and destroy infected shoots. Sterilize shears after each cut by dipping in rubbing alcohol.	Shoots wilt and die. May kill entire plant unless infected shoots are removed.
Stem or root rot	Any	Pano-drench (as directed) Fermate, Zerlate, Parzate, Captan, Semezan, Terrachlor.	See damping-off. Don't plant deep; avoid overwatering.		Gardenia	Take cuttings from tops of plants. Steam sterilize soil mixture and pots.	Infected plants have orange-yellow inner bark.
	Calla	2 oz. Sporgon in 1 gal. water for 3-hour soak. 1 lb. New Imp. Ceresan to 50 gal. water. Soak 1 hour and plant. Formaldehyde 1-50 for 1 hour.	Remove rotted portions of calla before treatment. Steam soil and pots.		Rose	See Camellia.	Avoid leaving stubs.
Wilt	Aster	Steam sterilize soil and pots.	Steam or rotate plantings.		Geranium	Spray plants regularly with Captan or Parzate. Discard diseased plants.	Grow stock plants inside. Use coarse propagating sand and water sparingly.
	Begonia	Steam sterilize soil and pots.	Propagate from disease-free plants.		Rose	Soak dormant manetti in 1 pint formaldehyde to 40 gal. water or 1 lb. potassium permanganate per 25 gal. water for 2 hours.	Spray empty grafting case with 1 lb. Bordeaux per 5 gal. water.
	Carnation	Steam sterilize soil and pots.	Keep soil pH 6.0-6.5 and calcium at 150-200 ppm.		Geranium	Don't injure stems tearing off flower stalks; break off just underneath flower head.	Spray plants regularly with Captan or Parzate.
	Chrysanthemum	Steam sterilize soil and pots.	Buy cultured cuttings.		Carnation	Captan, Parzate, or Dithane Z-78 sprays.	Keep foliage and stems dry.
	Cineraria	Steam sterilize soil and pots.			Chrysanthemum	Destroy infected plants.	Buy stunt-free plants.
Rust	Aster Carnation Snapdragon	Dithane Z-78, Captan, Fermate, Zerlate, Parzate, or sulfur.	Keep foliage dry and new growth covered lightly with fungicide.		Cyclamen	Steam sterilize soil and pots.	
Black spot	Rose	Captan or Fermate.	Avoid overhead syringing.		Any	Destroy badly infected plants.	Spread by aphids.
	Chrysanthemum English Ivy	Captan, Fermate, Zerlate or Parzate.	Repeated applications necessary. Cover lower surfaces of leaves.		Asters Chrysanthemum Many others	Grow under cloth. If outside, DDT sprays repeatedly.	Spread by leafhoppers. Control by DDT sprays not always satisfactory.
Botrytis or petal blight	Chrysanthemum Snapdragon Others	Parzate dust applied weekly when color shows.	Keep flowers dry. Reduce humidity with heat and ventilation. Use fans to circulate air.		Calla	Destroy infected plants and keep thrips under control.	White or yellow spots or rings on leaves. Flowers may be distorted.
Mildew	Calendula Chrysanthemum Hydrangea Rose Saintpaulia Snapdragon	Sulfur dust or spray. Sulfur vaporized from steam pipes or light bulb in metal can. Milidex or Omazene spray regularly. Avoid drafts or infection will spread rapidly.	Sulfur often bleaches flowers. Parathion and sulfur together cause leafdrop on roses. For downy mildew use Dithane Z-78 spray.		Geranium	Destroy plants that have this virus.	Watersoaked spots or areas appear on foliage in winter.
Leafspots Foliage blights	Aster Azalea Begonia Carnation Chrysanthemum Cyclamen Geranium Hydrangea	Captan, Fermate, Zerlate, or Parzate sprays applied to thoroughly cover all of the plant.	Pick off and destroy badly infected leaves, keep foliage dry, give more space and air.		Lily	Keep soil pH 6.5 to 7.5—apply lime to soil.	Avoid acidic fertilizers—use nitrate of soda at 1 oz. to 2 gal. every other week.
					Snapdragon	No control known except hand picking of leaves.	Tips of leaves wilt back to stem; stem dies.
					Azalea	Bordeaux spray or hand pick.	Pinkish white puffy growths on leaves.

PEST CONTROL MATERIALS

(Continued from page 57. Dillutions, etc. for materials recommended on previous page)

Dithio (Sulfa-Tepp)

The bomb or smoke generator is useful for control of red spider adults, thrips, aphids, soft brown scale, and mealybugs. Three applications every 3 to 5 days (depending on weather conditions) will be necessary to clean up red spiders, scale, or mealybugs.

Endrin

Specific for cyclamen mite. Use the 18½% emulsion at 1-400 with a spreader.

Keithane (FW 293)

For red spider. Use 1 pint per 100 gallons with a spreader. Compatible with many spray materials, but not lime.

Lindane

Very effective for aphids, thrips, spittlebugs, and symphylids. Available as a 1% dust and as a 25% wettable used at 8 ounces per 100 gallons with a spreader. For control of various soil pests, apply the wettable powder at 1 ounce per 100 square feet or 8 ounces per 1000 square feet in water. Soil applications may be effective for a year. Can paint steam pipes with 4 ounces of 25% WP Lindane for 100,000 cubic feet—use enough water to make thin slurry and keep vents closed overnight.

Malathion

Control red spider, aphids, thrips, scale, leafrollers, and mealybugs. Covers wide range of pests like Parathion, but is safer to plants and people. Use 25% wettable powder at 1½ to 2 pounds per 100 gallons on all pests except scale where amount should be increased to 5 pounds and application repeated.

OMPA (Octamethyl pyrophosphoramide, Pestox-3, or Schradan)

Kills both normal and resistant red spider mites, aphids, and foliar nematode. A systemic insecticide absorbed through younger leaves—not a contact or a fumigant. Slow acting and may be necessary to bomb 3 or 4 times at 1- to 2-week intervals with aerosols for resistant red spiders, then every 2 to 3 weeks. Very poisonous.

Parathion

Has a long residual action and kills a wide variety of pests, including red spider adults, aphids, thrips, leaf-eating pests, midge, mite, and others. It is available as an aerosol bomb, a smoke generator, a 2% dust, and as a 15% wettable powder which is used at 1 pound per 100 gallons under glass and 1½ pounds per 100 gallons outside. A spreader is recommended. In the presence of sulfur it causes leafdrop on roses. Its use causes leathery leaves on gardenias, yellow areas on aster and hydrangea leaves, and severe burn on cyclamen foliage. Ferns and other tender tropical plants may be damaged, and many types of succulents (Kalanchoe, Crassula, etc.) often are injured by its use. Covering such plants with several layers of overlapping newspaper will protect them from the fumes so the greenhouse can be bombed.

The wettable powder can be mixed with Captan, Zerlate, or Parzate. In any form, Parathion is very poisonous and precautions regarding its use should be observed.

Systox (E 1059 or Demeton)

Another systemic material absorbed through roots or young foliage, and also kills by contact or fumigant action. Faster acting than OMPA, more effective for normal red spider, aphids, and leaf nematode on mums, but similar in action to OMPA for resistant spider mite.

For soil applications use 2 fluid ounces of the 21% emulsion to 100 sq. ft. in any amount of water—lasts 2 to 3

months. For pot plants, put ½ fluid ounce of Systox in 15 gallons and apply as a liquid fertilizer. Systox can be applied to soil in combination with liquid fertilizers. Very poisonous—wear chemical cartridge respirator, rubber gloves, and protective clothing when applying as aerosol or to soil. Ventilate houses during and after Systox soil treatment to remove poisonous fumes.

Meta-Systox is similar in its action but less toxic to humans.

TEPP (Tetra ethyl pyrophosphate)

The aerosol bombs are useful for control of red spider adults and aphids. It is available as a contact insecticide to be used as a spray which can be mixed with wettable powders of DDT, Fermate and Captan. Avoid undue wetting of soil with the spray—it checks the growth of many plants.

FUNGICIDES

Captan (Orthocide)

Group name for new class of fungicides useful for leaf diseases, leaf spots, Botrytis, and other fungi. Use 1½ pounds per 100 gallons with a spreader.

Dithane Z-78

Quite useful for many leaf diseases, particularly downy mildew of roses, Botrytis, rust, and various leafspots. Should be used at 1 pound per 100 gallons with a spreader.

Fermate, Zerlate, and Parzate

Complex organic fungicides useful for leafspots, rusts, and blights, but not effective on mildew. Zerlate and Parzate appear to be somewhat more effective than Fermate for many diseases. Under glass use at 1 pound per 100 gallons, and outside use 1 pound per 100 gallons. In either case, use a spreader.

Mildex (formerly Iscothan)

Specific for powdery mildew. Use 6 ounces per 100 gallons with a spreader. In combination with Aramite use only 4 ounces per 100 gallons and saturate the plants. Do not combine with sulfur. May cause damage to young foliage of some varieties. Spray only when foliage can dry off rapidly—use heat and ventilation to facilitate rapid drying.

Omazene

Used for mildew at 8 ounces per 100 gallons with a spreader.

Semesan

Highly effective in control of Rhizoctonia damping-off and rot of cuttings. Use 1 tablespoonful per gallon of water (3 pounds per 100 gallons), mix well, and flood on infected area. Syringe deposit off foliage. Best not to apply during heat of day. Sometimes stunts young seedlings.

Sulfur

Flowers of sulfur are too coarse except for use in tin can fumigator. Sulfuron-X is a very fine wettable form used at 1 to 1½ pounds per 100 gallons under glass and 2 pounds per 100 gallons outside—use a spreader in either case. Dusting sulfur also useful.

Terrachlor

Useful for damping-off and stem rot. Apply 1 to 2 pounds per 100 gallons and drench the sand or soil.

SPREADERS

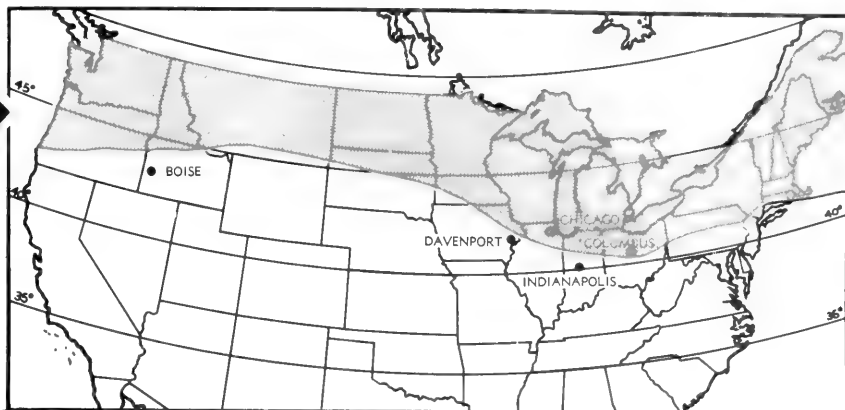
The purpose of a spreader is to reduce the surface tension of the spray liquid so it will spread over the leaf rather than gather in droplets. Some of the best materials are Santomerse S, used at 1-2000, or Triton-X, used at 1-3000.

Year Round Flowering Schedules

**FOR GROWERS
IN THIS AREA**

ZONE 1

USE SCHEDULES
BELOW (Thru page 66)



Throughout these tables, varieties are listed in order of preference for the period concerned. The one at the head of the list in each color for each date is generally the "bread and butter" variety for that period.

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 6	Sept. 20	Sept. 6-Oct. 10	Oct. 11	Oct. 11	Oct. 20	14	Jan. 17, '57
Standards	Sept. 6	Sept. 20	Sept. 6-Oct. 31	Nov. 1	No	—	11	Jan. 17
Pompons	Sept. 13	Sept. 27	Sept. 13-Oct. 17	Oct. 18	Oct. 18	Oct. 20	14	Jan. 24
Standards	Sept. 13	Sept. 27	Sept. 13-Nov. 7	Nov. 8	No	—	11	Jan. 24
Pompons	Sept. 20	Oct. 4	Sept. 20-Oct. 24	Oct. 25	No	—	14	Jan. 31
Standards	Sept. 20	Oct. 4	Sept. 20-Nov. 14	Nov. 15	No	—	11	Jan. 31
Pompons	Sept. 27	Oct. 11	Sept. 27-Oct. 31	Nov. 1	No	—	14	Feb. 7
Standards	Sept. 27	Oct. 11	Sept. 27-Nov. 21	Nov. 22	No	—	11	Feb. 7
Pompons	Oct. 4	Oct. 18	Oct. 4-Nov. 7	Nov. 8	No	—	14	Feb. 14
Standards	Oct. 4	Oct. 18	Oct. 4-Nov. 28	Nov. 29	No	—	11	Feb. 14
Pompons	Oct. 11	Oct. 25	Oct. 11-Nov. 14	Nov. 15	No	—	14	Feb. 21
Standards	Oct. 11	Oct. 25	Oct. 11-Dec. 5	Dec. 6	No	—	11	Feb. 21
Pompons	Oct. 18	Nov. 1	Oct. 18-Nov. 21	Nov. 22	No	—	14	Feb. 28
Standards	Oct. 18	Nov. 1	Oct. 18-Dec. 12	Dec. 13	No	—	11	Feb. 28

VARIETIES for above schedules

Standards

White

Mefo
Ind. White

Yellow

Yel. Mefo
Ind. Yellow

Pink

Ind. Pink
Lav. Queen

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Silversmith
Acclaim
Wedding Bells
Snowcrest
Snowcap (till
Feb. 1)
Satellite

Yellow

Corsair
Golden Acclaim
Yellow Acclaim
Cinderella

Pink

Alvoda
Debutante

Bronze

Christmas Greetings



Mr. John Hollberg, well-known Englewood, Colorado, grower, shown in his year round Mum production. The variety, old faithful Indianapolis. The Hollberg program includes both continuous standard and pompon production. Lots of Shasta here, and it does seem to sell, even though much of it is shipped.

2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 1

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Oct. 18	Nov. 1	Oct. 18-Dec. 5	Dec. 6	No	—	13	Mar. 7, '57
Standards	Oct. 18	Nov. 1	Oct. 18-Dec. 19	Dec. 20	No	—	11	Mar. 7
Pompons	Oct. 25	Nov. 8	Oct. 25-Dec. 12	Dec. 13	No	—	13	Mar. 14
Standards	Oct. 25	Nov. 8	Oct. 25-Dec. 26	Dec. 27	No	—	11	Mar. 14

VARIETIES for above schedules

Standards

White

Mefo
Ind. White

Yellow

Yel. Mefo
Imp. Ind. Yellow
Ind. Yellow

Pink

Ind. Pink
Lav. Queen

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Acclaim
Satellite
Ill. Glacier

Yellow

Golden Acclaim
Yel. Acclaim
Corsair

Pink

Debutante
Heritage

Bronze

Galaxy

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Nov. 1	Nov. 15	Nov. 1-Jan. 2	Jan. 3	No	—	11	Mar. 21
Standards	Nov. 1	Nov. 15	Nov. 1-Jan. 9	Jan. 10	No	—	10	Mar. 21
Pompons	Nov. 8	Nov. 22	Nov. 8-Jan. 9	Jan. 10	No	—	11	Mar. 28
Standards	Nov. 8	Nov. 22	Nov. 8-Jan. 16	Jan. 17	No	—	10	Mar. 28
Pompons	Nov. 15	Nov. 29	Nov. 15-Jan. 16	Jan. 17	Mar. 15	Note 1	11	Apr. 4
Standards	Nov. 15	Nov. 29	Nov. 15-Jan. 23	Jan. 24	Mar. 15	Note 1	10	Apr. 4
Pompons	Nov. 15	Dec. 6	Nov. 15-Jan. 23	Jan. 24	Mar. 15	Note 1	11	Apr. 11
Standards	Nov. 15	Dec. 6	Nov. 15-Jan. 30	Jan. 31	Mar. 15	Note 1	10	Apr. 11

VARIETIES for above schedules

Standards

White

Ind. White
Queen's Lace
Wh. Mary Garden

Yellow

Imp. Ind. Yellow
Ind. Yellow
Gold Lace

Pink

Ind. Pink
Lav. Queen
Mary Garden

Bronze

Dk. Ind. Bronze
Ind. Bronze

In areas where March-April tends to be cool and cloudy, growers may find Mefo superior to Indianapolis till early April.

Pompons

White

Shasta
Paramount (after April 1)
Ill. Igloo
Belray
Whitetop

Yellow

Yel. Shasta
Yel. Igloo (after April 1)
Yel. Paramount (after April 1)
Forty-Niner
Lollipop

Pink

Almega
Delmar
Masterpiece
Portrait
Pennant

Bronze

Rusticon



Year round Mums in the St. Louis area—May, 1956. The grower, Ted Ahner (above right), New Baden, Illinois. On the left, John Gatewood, Geo. J. Ball representative. Indianapolis has been a heavy favorite in this area for years—they are even called "St. Louis Mums" in certain market areas.

FOR GROWERS IN ZONE 1

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Nov. 29	Dec. 20	Nov. 29-Feb. 6	Feb. 7	Mar. 15	Note 1	10	Apr. 18, '57
Dec. 6	Dec. 27	Dec. 6-Feb. 13	Feb. 14	Mar. 15	Note 1	10	Apr. 25
Dec. 20	Jan. 10, '57	Dec. 20-Feb. 20	Feb. 21	Mar. 15	Note 1	10	May 2
Dec. 27	Jan. 17	Dec. 27-Feb. 27	Feb. 28	Mar. 15	Note 1	10	May 9
Jan. 10, '57	Jan. 31	Jan. 10-Mar. 6	Mar. 7	Mar. 15	Note 1	10	May 16
Jan. 17	Feb. 7	Jan. 17-Mar. 13	Mar. 14	Mar. 15	Note 1	10	May 23
Jan. 24	Feb. 14	Jan. 24-Mar. 20	Mar. 21	Mar. 21	Note 1	10	May 30

VARIETIES for above schedules

Standards

White

Ind. White
Queen's Lace
Wh. Mary Garden

Yellow

Imp. Ind. Yellow
Ind. Yellow
Luyona
Gold Lace

Pink

Ind. Pink (till May 15)
Lav. Queen
Mary Garden

Bronze

(Not recommended at this time)

Pompons

White

Whitotop
Keepsake (after May 1)
Shasta
Ill. Igloo
Ill. Snowdrift
Pinocchio
Pacesetter

Yellow

Yel. Shasta
Mary Hall (after May 1)
Yel. Ill. Igloo
Yel. Beauregard
Aztec
Starbright

Pink

Masterpiece (till May 1)
Portrait
Bluechip
Pennant (till May 1)
Reward

Bronze

Rustican
Climax

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Feb. 7	Feb. 28	Feb. 7-Mar. 27	Mar. 28	Mar. 28	Note 1	10	June 6
Feb. 14	Mar. 7	Feb. 14-Apr. 3	Apr. 4	Apr. 4	Note 1	10	June 13
Feb. 28	Mar. 21	Feb. 28-Apr. 10	Apr. 11	Apr. 11	Note 1	10	June 20
Mar. 7	Mar. 28	Mar. 7-Apr. 17	Apr. 18	Apr. 18	Note 1	10	June 27
Mar. 14	Apr. 4	Mar. 14-Apr. 24	Apr. 25	Apr. 25	Note 1	10	July 4
Mar. 21	Apr. 11	Mar. 21-May 1	May 2	May 2	Note 1	10	July 11

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
(after June 15)
Ind. White

Yellow

Good News
Luyona
Imp. Ind. Yellow
Ind. Yellow

Pink

Dk. Orch. Queen
Mary Garden

Bronze

(Not recommended for this period)

Warning: pink and bronze standards and pompons will fade badly at high temperatures.

Pompons

White

Whitotop
Keepsake
Shasta (till June 30)
Ill. Igloo
Pinocchio
Ill. Snowdrift
Pacesetter
Alaska

Yellow

Mary Hall
Yel. Ill. Igloo
Yel. Beauregard
Yel. Shasta
(till June 30)
Golden Herald
Aztec
Starbright

Pink

Bluechip
Reward
Portrait
Bonnie

Bronze

Beauregard
Or. Beauregard
Climax



Year round standards on Long Island—The Rose Fair Greenhouses, Blue Point, L. I. Michael Kirsch, manager, in the photo. Rose Fair are wholesale growers, report generally favorable market reception of their crop so far.

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 1

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Mar. 28	Apr. 18	Mar. 28-May 15	May 16	May 16	Note 1	9	July 18, '57
Standards	Mar. 28	Apr. 18	Mar. 28-May 8	May 9	May 9	Note 1	10	July 18
Pompons	Apr. 4	Apr. 25	Apr. 4-May 22	May 23	May 23	Note 1	9	July 25
Standards	Apr. 4	Apr. 25	Apr. 4-May 15	May 16	May 16	Note 1	10	July 25
Pompons	Apr. 18	May 2	Apr. 18-May 29	May 30	May 30	Note 1	9	Aug. 1
Standards	Apr. 18	May 2	Apr. 18-May 22	May 23	May 23	Note 1	10	Aug. 1
Pompons	Apr. 25	May 9	Apr. 25-May 31	June 1	June 6	Note 1	9	Aug. 8
Standards	Apr. 25	May 9	Apr. 25-May 29	May 30	May 30	Note 1	10	Aug. 8
Pompons	May 2	May 16	May 2-May 31	June 1	June 13	Note 1	9	Aug. 15
Standards	May 2	May 16	May 2-May 31	June 1	June 6	Note 1	10	Aug. 15
Pompons	May 9	May 23	May 9-May 31	June 1	June 20	Note 1	9	Aug. 22
Standards	May 9	May 23	May 9-May 31	June 1	June 13	Note 1	10	Aug. 22
Pompons	May 16	May 30	May 16-May 31	June 1	June 27	Note 1	9	Aug. 29
Standards	May 16	May 30	May 16-May 31	June 1	June 20	Note 1	10	Aug. 29

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
Ind. White (note 3)

Yellow

Good News
Ind. Yellow (note 3)
Dk. Ind. Yellow (note 3)
Imp. Ind. Yellow (note 3)

Pink

Dk. Orch. Queen

Bronze

Detroit News

Warning: pink and bronze standards and pompons will fade badly at high temperatures.

Pompons

White

Keepsake
Popcorn
Alaska
Silvertone

Yellow

Gold Coast
Golden Herald
Aztec
Starbright

Pink

Bluechip
Pinkette
Delight

Bronze

Jetfire
Gaiety

A possible alternative for late summer pomps: use Keepsake, Yellow Beauregard, Delight or Bluechip, Beauregard or Jetfire. Use standard schedules (10 week) shown above. Suggest trials of Iceberg thru this period.

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
	May 23	June 6	May 23-May 31	June 1	June 27	Note 1	10	Sept. 5
	May 30	June 13	May 30-May 31	June 1	July 4	Note 1	10	Sept. 12
	May 30	June 13	May 30-May 31	June 1	July 11	Note 1	10	Sept. 19
	June 6	June 20	No	—	July 18	Note 1	10	Sept. 26
	June 13	June 27	No	—	July 25	Sept. 25	10	Oct. 3
	June 20	July 4	No	—	Aug. 1	Sept. 25	10	Oct. 10

VARIETIES for above schedules

Standards

White

Ind. White

Yellow

Ind. Yellow
Imp. Ind. Yellow
Good News

Pink

Ind. Pink

Bronze

Dk. Ind. Bronze
Ind. Bronze
Detroit News

Pompons

White

Whitetop
Shasta (after Sept. 16)
Ill. Igloo
Ill. Snowdrift
Pinocchio
Silver Cloud
Alaska

Yellow

Yel. Beauregard
Yel. Shasta (after Sept. 16)
Yel. Igloo
Mary Hall
Aztec

Pink

Bluechip
Portrait
Delight
Bonnie

Bronze

Beauregard
Jetfire
Or. Beauregard
Rubicon
Gaiety

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.
3. In sections where summer heat is severe, Gt. Betsy Ross and Good News are recommended. However, with cooling, Indianapolis can be grown successfully. It is a better shipper.

FOR GROWERS IN ZONE 1

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	June 27	July 11	No	—	Aug. 1	Sept. 30	11	Oct. 17, '57
Standards	June 27	July 11	Aug. 1-Aug. 7	Aug. 8	Aug. 8	Sept. 25	10	Oct. 17
Pompons	July 4	July 18	Aug. 1-Aug. 7	Aug. 8	Aug. 8	Sept. 30	11	Oct. 24
Standards	July 4	July 18	Aug. 1-Aug. 14	Aug. 15	Aug. 15	Sept. 25	10	Oct. 24
Pompons	July 11	July 25	Aug. 1-Aug. 14	Aug. 15	Aug. 15	Sept. 30	11	Oct. 31
Standards	July 11	July 25	Aug. 1-Aug. 21	Aug. 22	Aug. 22	Sept. 25	10	Oct. 31
Pompons	July 18	Aug. 1	Aug. 1-Aug. 21	Aug. 22	Aug. 22	Sept. 30	11	Nov. 7
Standards	July 18	Aug. 1	Aug. 1-Aug. 28	Aug. 29	Aug. 29	Sept. 25	10	Nov. 7
Pompons	July 25	Aug. 8	Aug. 1-Aug. 28	Aug. 29	Aug. 29	Sept. 30	11	Nov. 14
Standards	July 25	Aug. 8	Aug. 1-Sept. 4	Sept. 5	Sept. 5	Sept. 25	10	Nov. 14
Pompons	Aug. 1	Aug. 15	Aug. 1-Sept. 4	Sept. 5	Sept. 5	Sept. 30	11	Nov. 21
Standards	Aug. 1	Aug. 15	Aug. 1-Sept. 11	Sept. 12	Sept. 12	Sept. 25	10	Nov. 21
Pompons	Aug. 8	Aug. 22	Aug. 8-Sept. 11	Sept. 12	Sept. 12	Sept. 30	11	Nov. 28
Standards	Aug. 8	Aug. 22	Aug. 8-Sept. 18	Sept. 19	Sept. 19	Sept. 25	10	Nov. 28
Pompons	Aug. 8	Aug. 22	Aug. 8-Sept. 18	Sept. 19	Sept. 19	Sept. 30	11	Dec. 5
Standards	Aug. 8	Aug. 22	Aug. 8-Sept. 25	Sept. 26	No	—	10	Dec. 5
Pompons	Aug. 15	Aug. 29	Aug. 15-Sept. 25	Sept. 26	Sept. 26	Sept. 30	11	Dec. 12
Standards	Aug. 15	Aug. 29	Aug. 15-Oct. 2	Oct. 3	No	—	10	Dec. 12

VARIETIES for above schedules

Standards

White

Ind. White

Yellow

Ind. Yellow
Imp. Ind. Yellow
Good News

Pink

Ind. Pink
Lav. Queen

Bronze

Dk. Ind. Bronze
Ind. Bronze
Detroit News

Pompons

White

Paramount
Shasta
Little America
(Nov. only)
Whitetop
Ill. Igloo
Ill. Snowdrift

Yellow

Golden Chord
Yel. Paramount
Yel. Shasta
Klondike (after Nov. 1)
Pippin
Yel. Igloo
Yel. Beauregard

Pink

Almega
Soprano
Portrait
Pennant
Delmar

Bronze

Rusticon
Thelma
Rubicon
Beauregard

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Aug. 15	Aug. 29	Aug. 15-Sept. 11	Sept. 12	Sept. 12	Oct. 20	14	Dec. 19
Standards	Aug. 15	Aug. 29	Aug. 15-Oct. 9	Oct. 10	No	—	10	Dec. 19
Pompons	Aug. 22	Sept. 5	Aug. 22-Sept. 18	Sept. 19	Sept. 19	Oct. 20	14	Dec. 26
Standards	Aug. 22	Sept. 5	Aug. 22-Oct. 16	Oct. 17	No	—	10	Dec. 26

VARIETIES for above schedules

Standards

White

Ind. White

Yellow

Imp. Ind. Yellow
Ind. Yellow

Pink

Ind. Pink
Lav. Queen

Bronze

Ind. Bronze
Dk. Ind. Bronze
Garnet King

Pompons

White

Acclaim
Snowcap
Wedding Bells
Snowcrest

Yellow

Golden Anniversary
Golden Acclaim
Cinderella

Pink

Alvoda
Debutante

Bronze

Christmas Greetings
Merrymaker

FOR GROWERS IN ZONE 1

	Plant Date ^a	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Aug. 29, '57	Sept. 12	Aug. 29-Sept. 25	Sept. 26	Sept. 26	Oct. 20	14	Jan. 2, '58
Standards	Aug. 29	Sept. 12	Aug. 29-Oct. 16	Oct. 17	No	—	11	Jan. 2
Pompons	Sept. 5	Sept. 19	Sept. 5-Oct. 2	Oct. 3	Oct. 3	Oct. 20	14	Jan. 9
Standards	Sept. 5	Sept. 19	Sept. 5-Oct. 23	Oct. 24	No	—	11	Jan. 9

VARIETIES for above schedules

Standards

White

Mefo
Ind. White

Yellow

Yel. Mefo
Imp. Ind. Yellow
Ind. Yellow

Pink

Ind. Pink
Lav. Queen

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Acclaim
Snowcap
Wedding Bells
Snowcrest

Yellow

Golden Anniversary
Golden Acclaim
Cinderella

Pink

Alvoda
Debutante

Bronze

Christmas Greetings
Merrymaker

	Plant Date ^a	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 5	Sept. 19	Sept. 5-Oct. 9	Oct. 10	Oct. 10	Oct. 20	14	Jan. 16, '58
Standards	Sept. 5	Sept. 19	Sept. 5-Oct. 30	Oct. 31	No	—	11	Jan. 16
Pompons	Sept. 12	Sept. 26	Sept. 12-Oct. 16	Oct. 17	Oct. 17	Oct. 20	14	Jan. 23
Standards	Sept. 12	Sept. 26	Sept. 12-Nov. 6	Nov. 7	No	—	11	Jan. 23
Pompons	Sept. 19	Oct. 3	Sept. 19-Oct. 23	Oct. 24	No	—	14	Jan. 30
Standards	Sept. 19	Oct. 3	Sept. 19-Nov. 13	Nov. 14	No	—	11	Jan. 30
Pompons	Sept. 26	Oct. 10	Sept. 26-Oct. 30	Oct. 31	No	—	14	Feb. 6
Standards	Sept. 26	Oct. 10	Sept. 26-Nov. 20	Nov. 21	No	—	11	Feb. 6
Pompons	Oct. 3	Oct. 17	Oct. 3-Nov. 6	Nov. 7	No	—	14	Feb. 13
Standards	Oct. 3	Oct. 17	Oct. 3-Nov. 27	Nov. 28	No	—	11	Feb. 13
Pompons	Oct. 10	Oct. 24	Oct. 10-Nov. 13	Nov. 14	No	—	14	Feb. 20
Standards	Oct. 10	Oct. 24	Oct. 10-Dec. 4	Dec. 5	No	—	11	Feb. 20
Pompons	Oct. 17	Oct. 31	Oct. 17-Nov. 20	Nov. 21	No	—	14	Feb. 27
Standards	Oct. 17	Oct. 31	Oct. 17-Dec. 11	Dec. 12	No	—	11	Feb. 27

VARIETIES for above schedules

Standards

White

Mefo
Ind. White

Yellow

Yel. Mefo
Imp. Ind. Yellow
Ind. Yellow

Pink

Ind. Pink
Lav. Queen

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Silversmith
Acclaim
Wedding Bells
Snowcrest
Snowcap
(after Feb. 1)
Satellite

Yellow

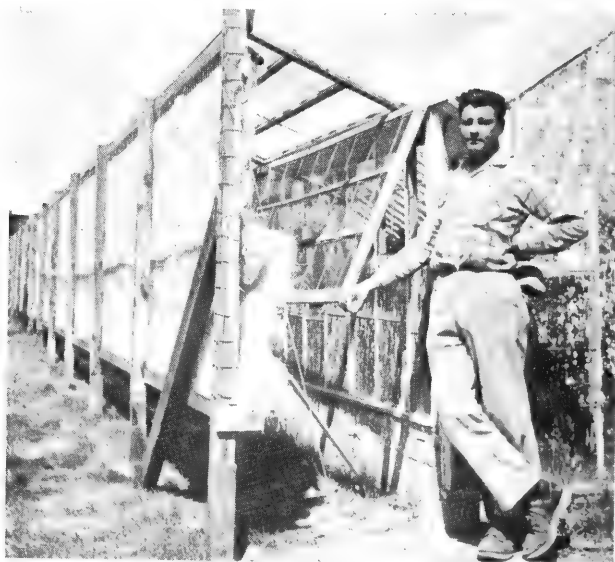
Corsair
Golden Acclaim
Yel. Acclaim
Cinderella

Pink

Alvoda
Debutante
Argyle

Bronze

Christmas Greeting



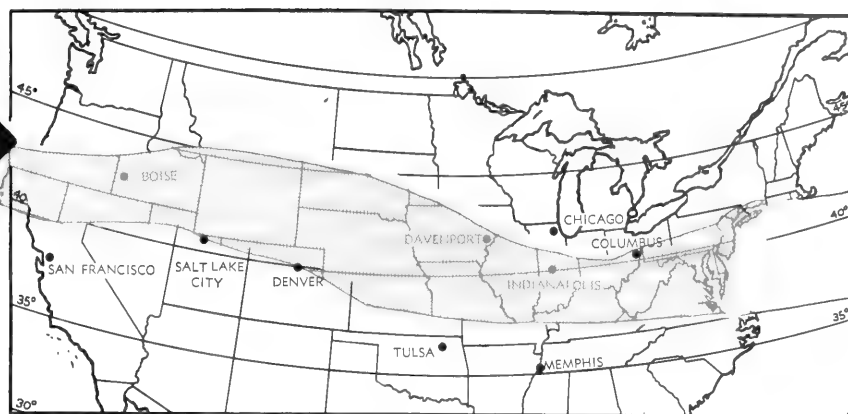
Cooling at Ahner Brothers' range, Kirkwood, Missouri, Herb Ahner in the photo. Many growers build the pad well out away from the greenhouse in this way—and of course enclose it with the greenhouse either with plastic or cold frames as shown above so that the cold air will be drawn through the pad from the outside, in through the ventilator, and across the crops. One advantage—in the spring when heat is needed at night, the ventilators can be opened next morning and the cooling turned on without disturbing the greenhouse, as is necessary when the pads are built into the wall.

2. For single stemmed crops, plant cuttings on pinch date.

**FOR GROWERS
IN THIS AREA**

ZONE 2

USE SCHEDULES
BELOW (Thru page 72)



	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 6, '56	Sept. 20	Sept. 6-Sept. 26	Sept. 27	Sept. 27	Oct. 20	14	Jan. 3, '57
Standards	Sept. 6	Sept. 20	Sept. 6-Oct. 24	Oct. 25	No	—	10	Jan. 3
Pompons	Sept. 13	Sept. 27	Sept. 13-Oct. 3	Oct. 4	Oct. 4	Oct. 20	14	Jan. 10
Standards	Sept. 13	Sept. 27	Sept. 13-Oct. 31	Nov. 1	No	—	10	Jan. 10
Pompons	Sept. 13	Sept. 27	Sept. 13-Oct. 10	Oct. 11	Oct. 11	Oct. 20	14	Jan. 17
Standards	Sept. 13	Sept. 27	Sept. 13-Nov. 7	Nov. 8	No	—	10	Jan. 17
Pompons	Sept. 20	Oct. 4	Sept. 20-Oct. 17	Oct. 18	Oct. 18	Oct. 20	14	Jan. 24
Standards	Sept. 20	Oct. 4	Sept. 20-Nov. 14	Nov. 15	No	—	10	Jan. 24
Pompons	Sept. 27	Oct. 11	Sept. 27-Oct. 24	Oct. 25	No	—	14	Jan. 31
Standards	Sept. 27	Oct. 11	Sept. 27-Nov. 21	Nov. 22	No	—	10	Jan. 31

VARIETIES for the above schedules

Standards

White

Ind. White

Yellow

Imp. Ind. Yellow
Ind. Yellow

Pink

Ind. Pink
Lav. Queen

Bronze

Ind. Bronze
Garnet King

Pompons

White

Acclaim
Snowcap
Snowcrest
Wedding Bells

Yellow

Golden Acclaim
Golden Anniversary
Cinderella

Pink

Alvoda
Debutante

Bronze

Christ. Greeting

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Oct. 4	Oct. 18	Oct. 4-Oct. 31	Nov. 1	No	—	14	Feb. 7
Standards	Oct. 4	Oct. 18	Oct. 4-Nov. 21	Nov. 22	No	—	11	Feb. 7
Pompons	Oct. 11	Oct. 25	Oct. 11-Nov. 7	Nov. 8	No	—	14	Feb. 14
Standards	Oct. 11	Oct. 25	Oct. 11-Nov. 28	Nov. 29	No	—	11	Feb. 14
Pompons	Oct. 18	Nov. 1	Oct. 18-Nov. 14	Nov. 15	No	—	14	Feb. 21
Standards	Oct. 18	Nov. 1	Oct. 18-Dec. 5	Dec. 6	No	—	11	Feb. 21
Pompons	Oct. 25	Nov. 8	Oct. 25-Nov. 21	Nov. 22	No	—	14	Feb. 28
Standards	Oct. 25	Nov. 8	Oct. 25-Dec. 12	Dec. 13	No	—	11	Feb. 28

VARIETIES for the above schedules

Standards

White

Mefo
Ind. White

Yellow

Yel. Mefo
Imp. Ind. Yellow
Ind. Yellow

Pink

Ind. Pink

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Silversmith
Acclaim
Snowcrest
Snowcap (till Feb. 1)
Satellite
Wedding Bells

Yellow

Corsair
Golden Acclaim
Yellow Acclaim
Cinderella

Pink

Alvoda
Debutante

Bronze

Christmas Greetings

2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 2

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Oct. 25	Nov. 8	Oct. 25-Dec. 5	Dec. 6	No	—	13	Mar. 7, '57
Standards	Oct. 25	Nov. 8	Oct. 25-Dec. 19	Dec. 20	No	—	11	Mar. 7
Pompons	Nov. 1	Nov. 15	Nov. 1-Dec. 12	Dec. 13	No	—	13	Mar. 14
Standards	Nov. 1	Nov. 15	Nov. 1-Dec. 26	Dec. 27	No	—	11	Mar. 14

VARIETIES for above schedules

Standards

White

Mefo
Ind. White

Yellow

Yel. Mefo
Ind. Yellow

Pink

Ind. Pink

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Acclaim
Satellite

Yellow

Golden Acclaim
Yel. Acclaim
Corsair

Pink

Debutante
Heritage

Bronze

Galaxy

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Nov. 8	Nov. 22	Nov. 8-Jan. 2	Jan. 3	No	—	11	Mar. 21
Standards	Nov. 8	Nov. 22	Nov. 8-Jan. 9	Jan. 10	No	—	10	Mar. 21
Pompons	Nov. 15	Nov. 29	Nov. 15-Jan. 9	Jan. 10	No	—	11	Mar. 28
Standards	Nov. 15	Nov. 29	Nov. 15-Jan. 16	Jan. 17	No	—	10	Mar. 28
Pompons	Nov. 22	Dec. 6	Nov. 22-Jan. 16	Jan. 17	Mar. 15	Note 1	11	Apr. 4
Standards	Nov. 22	Dec. 6	Nov. 22-Jan. 23	Jan. 24	Mar. 15	Note 1	10	Apr. 4
Pompons	Nov. 22	Dec. 13	Nov. 22-Jan. 23	Jan. 24	Mar. 15	Note 1	11	Apr. 11
Standards	Nov. 22	Dec. 13	Nov. 22-Jan. 30	Jan. 31	Mar. 15	Note 1	10	Apr. 11

VARIETIES for above schedules

Standards

White

Ind. White
Queen's Lace
Wh. Mary Garden

Yellow

Imp. Ind. Yellow
Ind. Yellow
Gold Lace

Pink

Ind. Pink
Mary Garden
Lav. Queen

Bronze

Dk. Ind. Bronze
Ind. Bronze

Pompons

White

Whitetop
Shasta
Ill. Igloo
Belray
Iceberg
Paramount

Yellow

Yel. Shasta
Yel. Ill. Igloo
Forty-Niner
Yel. Paramount

Pink

Almega
Masterpiece
Portrait
Delmar
Pennant

Bronze

Rusticon



Indianapolis in pots at Parker Wholesale Florist, Ft. Worth, Texas. Mr. Parker on the left and Darrell Messick, Geo. J. Ball representative, on the right. Mr. Parker does an outstanding job in bringing Indianapolis in short and even. Note the cooling fans—almost a necessity on ranges in the Southwest which are operated through the summer.

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 2

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Dec. 6	Dec. 27	Dec. 6-Feb. 6	Feb. 7	Mar. 15	Note 1	10	Apr. 18, '57
Dec. 13	Jan. 3, '57	Dec. 13-Feb. 13	Feb. 14	Mar. 15	Note 1	10	Apr. 25
Dec. 27	Jan. 17	Dec. 27-Feb. 20	Feb. 21	Mar. 15	Note 1	10	May 2
Jan. 3	Jan. 24	Jan. 3-Feb. 27	Feb. 28	Mar. 15	Note 1	10	May 9
Jan. 17	Feb. 7	Jan. 17-Mar. 6	Mar. 7	Mar. 15	Note 1	10	May 16
Jan. 24	Feb. 14	Jan. 24-Mar. 13	Mar. 14	Mar. 15	Note 1	10	May 23
Jan. 31	Feb. 21	Jan. 31-Mar. 20	Mar. 21	Mar. 21	Note 1	10	May 30

VARIETIES for above schedules

Standards

White

Ind. White
Queen's Lace
Wh. Mary Garlen

Yellow

Imp. Ind. Yellow
Ind. Yellow
Gold Lace
Luyona

Pink

Ind. Pink
Lav. Queen
Mary Garden

Bronze

(Not recommended for this period)

Pompons

White

Whitetop
Iceberg
Keepsake (Use White
Keepsake till May 15)
Shasta
Ill. Igloo
Ill. Snowdrift
Pinocchio
Pacesetter

Yellow

Yel. Shasta
Mary Hall (after May 1)
Yel. Ill. Igloo
Aztec
Starbright
Yel. Beauregard

Pink

Masterpiece
(till May 1)
Portrait
Bluechip
Pennant (till
May 15)
Bonnie
Delight

Bronze

Paradise
Talisman
Rubicon

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Feb. 14	Mar. 7	Feb. 14-Mar. 27	Mar. 28	Mar. 28	Note 1	10	June 6
Feb. 21	Mar. 14	Feb. 21-Apr. 3	Apr. 4	Apr. 4	Note 1	10	June 13
Feb. 28	Mar. 21	Feb. 28-Apr. 10	Apr. 11	Apr. 11	Note 1	10	June 20
Mar. 7	Mar. 28	Mar. 7-Apr. 17	Apr. 18	Apr. 18	Note 1	10	June 27
Mar. 14	Apr. 4	Mar. 14-Apr. 24	Apr. 25	Apr. 25	Note 1	10	July 4
Mar. 21	Apr. 11	Mar. 21-May 1	May 2	May 2	Note 1	10	July 11

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
Queen's Lace
Ind. White (till
June 15)

Yellow

Good News
Gold Lace
Imp. Ind. Yellow (till
June 15)

Pink

Lav. Queen
Mary Garden

Bronze

(Not recommended for this period)

Warning: pink and bronze standards and pompons will fade badly at high temperatures.

Pompons

White

Keepsake
Iceberg
Shasta (till
June 30)
Ill. Igloo
Whitetop
Ill. Snowdrift
Pinocchio
Pacesetter

Yellow

Mary Hall
Yel. Beauregard
Yel. Ill. Igloo
Yel. Shasta (till
June 30)
Golden Herald
(after June 15)
Aztec
Starbright

Pink

Bluechip
Portrait
Bonnie
Delight

Bronze

Beauregard
Or. Beauregard
Gaiety

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 2

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Mar. 28	Apr. 18	Mar. 28-May 15	May 16	May 16	Note 1	9	July 18, '57
Standards	Mar. 28	Apr. 18	Mar. 28-May 8	May 9	May 9	Note 1	10	July 18
Pompons	Apr. 4	Apr. 25	Apr. 4-May 22	May 23	May 23	Note 1	9	July 25
Standards	Apr. 4	Apr. 25	Apr. 4-May 15	May 16	May 16	Note 1	10	July 25
Pompons	Apr. 18	May 2	Apr. 18-May 29	May 30	May 30	Note 1	9	Aug. 1
Standards	Apr. 18	May 2	Apr. 18-May 22	May 23	May 23	Note 1	10	Aug. 1
Pompons	Apr. 25	May 9	Apr. 25-May 31	June 1	June 6	Note 1	9	Aug. 8
Standards	Apr. 25	May 9	Apr. 25-May 29	May 30	May 30	Note 1	10	Aug. 8
Pompons	May 2	May 16	May 2-May 31	June 1	June 13	Note 1	9	Aug. 15
Standards	May 2	May 16	May 2-May 31	June 1	June 6	Note 1	10	Aug. 15
Pompons	May 9	May 23	May 9-May 31	June 1	June 20	Note 1	9	Aug. 22
Standards	May 9	May 23	May 9-May 31	June 1	June 13	Note 1	10	Aug. 22
Pompons	May 16	May 30	May 16-May 31	June 1	June 27	Note 1	9	Aug. 29
Standards	May 16	May 30	May 16-May 31	June 1	June 20	Note 1	10	Aug. 29

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
Ind. White

Yellow

Good News
Ind. Yellow

Pink

Lav. Queen
Ind. Pink

Bronze

Detroit News

Pompons

White

Keepsake
Popcorn
Silvertone
Alaska

Yellow

Gold Coast
Golden Herald
Aztec
Starbright

Pink

Bluechip
Vogue

Bronze

Jetfire
Gaiety

Warning: pink and bronze standards and pompons will fade badly at high temperatures.

A possible alternative for late summer pomps: use Keepsake, Yel. Beauregard, Delight or Bluechip, Beauregard or Jetfire. Use standard schedules (10 week) shown above. Suggest trials of Iceberg thru this period.

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
	May 23	June 6	May 23-May 31	June 1	June 27	Note 1	10	Sept. 5
	May 30	June 13	May 30-May 31	June 1	July 4	Note 1	10	Sept. 12
	June 6	June 20	No	—	July 11	Note 1	10	Sept. 19
	June 13	June 27	July 15-July 17	July 18	July 18	Note 1	10	Sept. 26
	June 20	July 4	July 15-July 24	July 25	July 25	Note 1	10	Oct. 3
	June 27	July 11	July 15-July 31	Aug. 1	Aug. 1	Sept. 25	10	Oct. 10

VARIETIES for above schedules

Standards

White

Ind. White

Yellow

Ind. Yellow
Good News

Pink

Ind. Pink

Bronze

Dk. Ind. Bronze
Ind. Bronze
Detroit News

Pompons

White

Whitotop
Shasta (after Sept. 16)
Ill. Igloo
Ill. Snowdrift
Pinocchio
Alaska
Silvertone

Yellow

Yel. Beauregard
Yel. Shasta (after Sept. 16)
Yel. Ill. Igloo
Mary Hall
Aztec
Golden Herald

Pink

Bluechip
Portrait
Delight
Bonnie

Bronze

Beauregard
Jetfire
Rubicon
Gaiety

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 2

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	July 4	July 18	July 15-July 31	Aug. 1	Aug. 1	Sept. 30	11	Oct. 17, '57
Standards	July 4	July 18	July 15-Aug. 7	Aug. 8	Aug. 8	Sept. 25	10	Oct. 17
Pompons	July 11	July 25	July 15-Aug. 7	Aug. 8	Aug. 8	Sept. 30	11	Oct. 24
Standards	July 11	July 25	July 15-Aug. 14	Aug. 15	Aug. 15	Sept. 25	10	Oct. 24
Pompons	July 18	Aug. 1	July 18-Aug. 14	Aug. 15	Aug. 15	Sept. 30	11	Oct. 31
Standards	July 18	Aug. 1	July 18-Aug. 21	Aug. 22	Aug. 22	Sept. 25	10	Oct. 31
Pompons	July 25	Aug. 8	July 25-Aug. 21	Aug. 22	Aug. 22	Sept. 30	11	Nov. 7
Standards	July 25	Aug. 8	July 25-Aug. 28	Aug. 29	Aug. 29	Sept. 25	10	Nov. 7
Pompons	Aug. 1	Aug. 15	Aug. 1-Aug. 28	Aug. 29	Aug. 29	Sept. 30	11	Nov. 14
Standards	Aug. 1	Aug. 15	Aug. 1-Sept. 4	Sept. 5	Sept. 5	Sept. 25	10	Nov. 14
Pompons	Aug. 8	Aug. 22	Aug. 8-Sept. 4	Sept. 5	Sept. 5	Sept. 30	11	Nov. 21
Standards	Aug. 8	Aug. 22	Aug. 8-Sept. 11	Sept. 12	Sept. 12	Sept. 25	10	Nov. 21
Pompons	Aug. 15	Aug. 29	Aug. 15-Sept. 11	Sept. 12	Sept. 12	Sept. 30	11	Nov. 28
Standards	Aug. 15	Aug. 29	Aug. 15-Sept. 18	Sept. 19	Sept. 19	Sept. 25	10	Nov. 28
Pompons	Aug. 15	Aug. 29	Aug. 15-Sept. 18	Sept. 19	Sept. 19	Sept. 30	11	Dec. 5
Standards	Aug. 15	Aug. 29	Aug. 15-Sept. 25	Sept. 26	No	—	10	Dec. 5
Pompons	Aug. 22	Sept. 5	Aug. 22-Sept. 25	Sept. 26	Sept. 26	Sept. 30	11	Dec. 12
Standards	Aug. 22	Sept. 5	Aug. 22-Oct. 2	Oct. 3	No	—	10	Dec. 12
Pompons	Aug. 22	Sept. 5	Aug. 22-Oct. 2	Oct. 3	No	—	11	Dec. 19
Standards	Aug. 22	Sept. 5	Aug. 22-Oct. 9	Oct. 10	No	—	10	Dec. 19
Pompons	Aug. 29	Sept. 12	Aug. 29-Oct. 9	Oct. 10	No	—	11	Dec. 26
Standards	Aug. 29	Sept. 12	Aug. 29-Oct. 16	Oct. 17	No	—	10	Dec. 26

VARIETIES for above schedules

Standards

White
Ind. White

Yellow
Imp. Ind. Yellow
Ind. Yellow
Good News

Pink
Ind. Pink
Lav. Queen

Bronze
Dk. Ind. Bronze
Ind. Bronze
Detroit News

Pompons

White
Paramount
Shasta
Little America
(Nov. only)
Whitetop
III. Igloo
III. Snowdrift

Yellow
Golden Chord
Yel. Paramount
Yel. Shasta
Yel. Igloo
Yel. Beauregard
Pippin
Klondike (after Nov. 1)

Pink
Almega
Soprano
Portrait
Pennant
Masterpiece
(after Nov. 15)
Delmar

Bronze
Rusticon
Rubicon
Paragon
Thelma
Beauregard

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 5	Sept. 19	Sept. 5-Sept. 25	Sept. 26	Sept. 26	Oct. 20	14	Jan. 2, '58
Standards	Sept. 5	Sept. 19	Sept. 5-Oct. 23	Oct. 24	No	—	10	Jan. 2
Pompons	Sept. 12	Sept. 26	Sept. 12-Oct. 2	Oct. 3	Oct. 3	Oct. 20	14	Jan. 9
Standards	Sept. 12	Sept. 26	Sept. 12-Oct. 30	Oct. 31	No	—	10	Jan. 9
Pompons	Sept. 12	Sept. 26	Sept. 12-Oct. 9	Oct. 10	Oct. 10	Oct. 20	14	Jan. 16
Standards	Sept. 12	Sept. 26	Sept. 12-Nov. 6	Nov. 7	No	—	10	Jan. 16
Pompons	Sept. 19	Oct. 3	Sept. 19-Oct. 16	Oct. 17	Oct. 17	Oct. 20	14	Jan. 23
Standards	Sept. 19	Oct. 3	Sept. 19-Nov. 13	Nov. 14	No	—	10	Jan. 23
Pompons	Sept. 26	Oct. 10	Sept. 26-Oct. 23	Oct. 24	No	—	14	Jan. 30
Standards	Sept. 26	Oct. 10	Sept. 26-Nov. 20	Nov. 21	No	—	10	Jan. 30

VARIETIES for above schedules

Standards

White
Ind. White

Yellow
Imp. Ind. Yellow
Ind. Yellow

Pink
Ind. Pink
Lav. Queen

Bronze
Ind. Bronze
Garnet King

Pompons

White
Acclaim
Snowcap
Snowcrest
Wedding Bells

Yellow
Golden Acclaim
Golden Anniversary

Pink
Alvoda
Debutante

Bronze
Christmas Greeting

2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 2

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Oct. 3	Oct. 17	Oct. 3-Oct. 30	Oct. 31	No	—	14	Feb. 6, '58
Standards	Oct. 3	Oct. 17	Oct. 3-Nov. 20	Nov. 21	No	—	11	Feb. 6
Pompons	Oct. 10	Oct. 24	Oct. 10-Nov. 6	Nov. 7	No	—	14	Feb. 13
Standards	Oct. 10	Oct. 24	Oct. 10-Nov. 27	Nov. 28	No	—	11	Feb. 13
Pompons	Oct. 17	Oct. 31	Oct. 17-Nov. 13	Nov. 14	No	—	14	Feb. 20
Standards	Oct. 17	Oct. 31	Oct. 17-Dec. 4	Dec. 5	No	—	11	Feb. 20
Pompons	Oct. 24	Nov. 7	Oct. 24-Nov. 20	Nov. 21	No	—	14	Feb. 27
Standards	Oct. 24	Nov. 7	Oct. 24-Dec. 11	Dec. 12	No	—	11	Feb. 27

VARIETIES for above schedules

Standards

White
Mefo
Ind. White

Yellow
Yel. Mefo
Imp. Ind. Yellow
Ind. Yellow

Pink
Ind. Pink

Bronze
Ind. Bronze
Dk. Ind. Bronze

Pompons

White
Silversmith
Acclaim
Snowcrest
Snowcap (after Feb. 1)
Satellite

Yellow
Corsair
Golden Acclaim
Cinderella

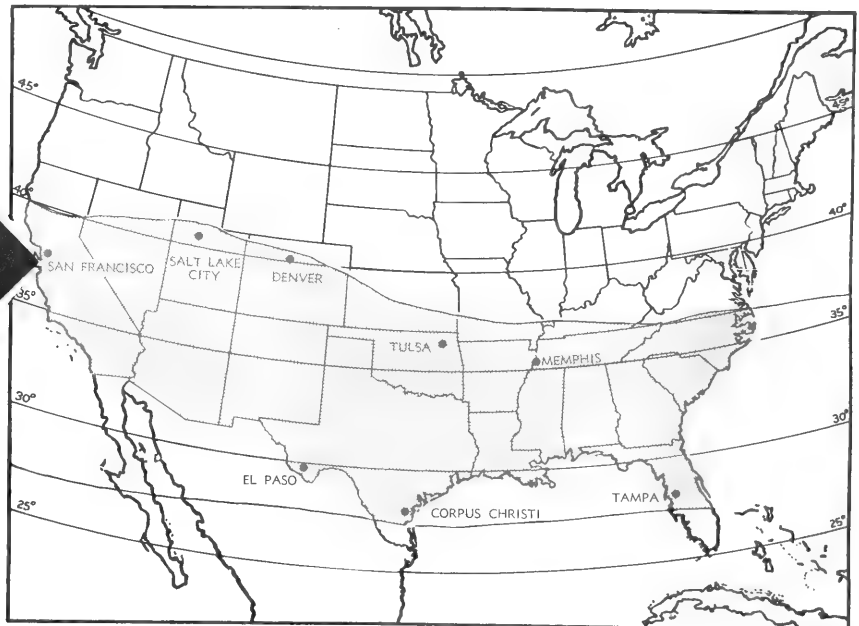
Pink
Alvoda
Debutante

Bronze
Christmas Greeting

**FOR GROWERS
IN THIS AREA**

ZONE 3

USE SCHEDULES
BELOW (Thru page 76)



Note

It is always difficult to generalize to the extent that these tables require. In many areas covered by Zone 3 shown above, winters are considerably warmer and brighter than average. In these areas, good stem length and quality on both mums and pomps can be produced in less time than these tables specify.

For example: in some southwestern sections, growers successfully grow single stem standards (Indianapolis varieties) with only 3 weeks of long days year round—3 weeks plant to lights off date. The tables that follow call for as much as 6 weeks of long days on crops to flower in early April, 5 weeks thru much of the winter.

Also some growers report that many varieties will flower in fewer weeks after lights are turned off than the catalog response periods specify. Indianapolis is cataloged as a 10 week variety (10 weeks from start of short days to flower). Under some conditions it will flower in nine weeks or even less.

By reducing the long day period to 3 weeks year round, and allowing only 9 weeks of short days, it is possible to flower 4 crops of Indianapolis per bed per year. It is suggested that too close a schedule not be undertaken without a year's experience on more leisurely schedules.

Our Mum Planning Service will be glad to help if there are any questions about this.

2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 3

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Aug. 30, '56	Sept. 13	Aug. 30-Oct. 3	Oct. 4	No	—	10	Dec. 13, '56
Aug. 30	Sept. 13	Aug. 30-Oct. 10	Oct. 11	No	—	10	Dec. 20
Sept. 6	Sept. 20	Sept. 6-Oct. 17	Oct. 18	No	—	10	Dec. 27
Sept. 13	Sept. 27	Sept. 13-Oct. 24	Oct. 25	No	—	10	Jan. 3, '57
Sept. 20	Oct. 4	Sept. 20-Oct. 31	Nov. 1	No	—	10	Jan. 10

VARIETIES for above schedules

Standards

White

Ind. White

Yellow

Imp. Ind. Yellow
Ind. Yellow
Good News
(till Oct. 1)

Pink

Ind. Pink
Lavender Queen

Bronze

Dk. Ind. Bronze
Ind. Bronze
Detroit News
(till Sept. 1)

Pompons

White

Whitetop
Shasta
Ill. Igloo
Ill. Snowdrift
Pinocchio
Iceberg

Yellow

Yellow Shasta
Mary Hall
(till Oct. 1)
Yel. Beaugard
Yel. Igloo
Aztec

Pink

Bluechip
Portrait
Delight
Bonnie

Bronze

Beaugard
Jetfire
Rubicon
Gaiety

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 20	Oct. 4	Sept. 20-Oct. 31	Nov. 1	No	—	11	Jan. 17
Standards	Sept. 20	Oct. 4	Sept. 20-Nov. 7	Nov. 8	No	—	10	Jan. 17
Pompons	Sept. 27	Oct. 11	Sept. 27-Nov. 7	Nov. 8	No	—	11	Jan. 24
Standards	Sept. 27	Oct. 11	Sept. 27-Nov. 14	Nov. 15	No	—	10	Jan. 24
Pompons	Oct. 4	Oct. 18	Oct. 4-Nov. 14	Nov. 15	No	—	11	Jan. 31
Standards	Oct. 4	Oct. 18	Oct. 4-Nov. 21	Nov. 22	No	—	10	Jan. 31
Pompons	Oct. 11	Oct. 25	Oct. 11-Nov. 21	Nov. 22	No	—	11	Feb. 7
Standards	Oct. 11	Oct. 25	Oct. 11-Nov. 28	Nov. 29	No	—	10	Feb. 7
Pompons	Oct. 18	Nov. 1	Oct. 18-Nov. 28	Nov. 29	No	—	11	Feb. 14
Standards	Oct. 18	Nov. 1	Oct. 18-Dec. 5	Dec. 6	No	—	10	Feb. 14
Pompons	Oct. 25	Nov. 8	Oct. 25-Dec. 5	Dec. 6	No	—	11	Feb. 21
Standards	Oct. 25	Nov. 8	Oct. 25-Dec. 12	Dec. 13	No	—	10	Feb. 21
Pompons	Nov. 1	Nov. 15	Nov. 1-Dec. 12	Dec. 13	No	—	11	Feb. 28
Standards	Nov. 1	Nov. 15	Nov. 1-Dec. 19	Dec. 20	No	—	10	Feb. 28
Pompons	Nov. 1	Nov. 15	Nov. 1-Dec. 19	Dec. 20	No	—	11	Mar. 7
Standards	Nov. 1	Nov. 15	Nov. 1-Dec. 26	Dec. 27	No	—	10	Mar. 7
Pompons	Nov. 8	Nov. 22	Nov. 8-Dec. 26	Dec. 27	No	—	11	Mar. 14
Standards	Nov. 8	Nov. 22	Nov. 8-Jan. 2	Jan. 3	No	—	10	Mar. 14
Pompons	Nov. 15	Nov. 29	Nov. 15-Jan. 2	Jan. 3	No	—	11	Mar. 21
Standards	Nov. 15	Nov. 29	Nov. 15-Jan. 9	Jan. 10	No	—	10	Mar. 21
Pompons	Nov. 15	Dec. 6	Nov. 15-Jan. 9	Jan. 10	No	—	11	Mar. 28
Standards	Nov. 15	Dec. 6	Nov. 15-Jan. 16	Jan. 17	No	—	10	Mar. 28

VARIETIES for above schedules

Standards

White

Ind. White
Queen's Lace
(after March 1)
White Mary Garden
(after March 1)

Yellow

Imp. Ind. Yellow
Ind. Yellow
Gold Lace
(after March 1)

Pink

Ind. Pink
Lavender Queen

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Shasta
Whitetop
Iceberg
Ill. Igloo
Ill. Snowdrift
Paramount

Yellow

Yellow Shasta
Forty-Niner
Yel. Igloo
Yel. Paramount
Golden Chord
Yel. Beaugard

Pink

Portrait
Almega
Pennant
Soprano
Masterpiece
Delight
Bonnie

Bronze

Rusticon
Thelma
Rubicon
Beaugard

2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 3

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Nov. 22	Dec. 13	Nov. 22-Jan. 23	Jan. 24	No	—	10	Apr. 4, '57
Nov. 29	Dec. 20	Nov. 29-Jan. 30	Jan. 31	No	—	10	Apr. 11
Dec. 13	Jan. 3, '57	Dec. 13-Feb. 6	Feb. 7	Apr. 1	Note 1	10	Apr. 18
Dec. 20	Jan. 10	Dec. 20-Feb. 13	Feb. 14	Apr. 1	Note 1	10	Apr. 25
Jan. 3, '57	Jan. 24	Jan. 3-Feb. 20	Feb. 21	Apr. 1	Note 1	10	May 2
Jan. 10	Jan. 31	Jan. 10-Feb. 27	Feb. 28	Apr. 1	Note 1	10	May 9
Jan. 24	Feb. 14	Jan. 24-Mar. 6	Mar. 7	Apr. 1	Note 1	10	May 16
Jan. 31	Feb. 21	Jan. 31-Mar. 13	Mar. 14	Apr. 1	Note 1	10	May 23
Feb. 7	Feb. 28	Feb. 7-Mar. 20	Mar. 21	Apr. 1	Note 1	10	May 30
Feb. 14	Mar. 7	Feb. 14-Mar. 27	Mar. 28	Apr. 1	Note 1	10	June 6
Feb. 21	Mar. 14	Feb. 21-Apr. 3	Apr. 4	Apr. 4	Note 1	10	June 13
Feb. 28	Mar. 21	Feb. 28-Apr. 10	Apr. 11	Apr. 11	Note 1	10	June 20
Mar. 7	Mar. 28	Mar. 7-Apr. 17	Apr. 18	Apr. 18	Note 1	10	June 27

VARIETIES for above schedules

Standards

White

Ind. White (Note 3)
Gt. Betsy Ross
Queen's Lace
Wh. Mary Garden

Yellow

Imp. Ind. Yellow
(Note 3)
Ind. Yellw (Note 3)
Good News
Gold Lace

Pink

Ind. Pink (Note 3)
Lavender Queen
Mary Garden

Bronze

Detroit News
Dk. Ind. Bronze
(Note 3)
Ind. Bronze (Note 3)

Pompons

White

Whitetop (till May 15)
Shasta (till June 1)
Keepsake
Ill. Igloo
Ill. Snowdrift
Pinocchio
Pacesetter
Iceberg

Yellow

Yellow Shasta
(till June 1)
Mary Hall
Gold Coast
Yel. Beauregard
Yel. Ill. Igloo
Aztec

Pink

Bluechip
Portrait
Delight

Bronze

Beauregard
Gaiety
Rubicon

Warning: pink and bronze standards and pompons will fade badly at high temperatures.



Pot mums are an important specialty at Furrow's, Guthrie, Oklahoma. Shown above is Steve Ray, manager (left), and Mr. John Furrow. Between them is a sample of what Furrows are doing in mid-August with Bonnaffon with cooling. All their range is pad cooled, including extensive production of cut Mums. Furrows were among the first to adopt cooling and by the way offer an excellent engineering service to growers planning to cool.



Year round cloth house production in the Rio Grande Valley—Gene Parks the grower (above right), and Darrell Messick (Geo. J. Ball representative) above left. Gene has been in production for nearly two years, has had a little heat available during midwinter, but is not sure whether it was really necessary. Shown above, Pacesetter, which has done well in this area. Gene is also well-known as a specialist in production of Bells of Ireland.

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.
3. In sections where summer heat is severe, Gt. Betsy Ross and Good News are recommended.

FOR GROWERS IN ZONE 3

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Mar. 14	Apr. 4	Mar. 14-May 1	May 2	May 2	Note 1	9	July 4, '57
Standards	Mar. 14	Apr. 4	Mar. 14-Apr. 24	Apr. 25	Apr. 25	Note 1	10	July 4
Pompons	Mar. 21	Apr. 11	Mar. 21-May 8	May 9	May 9	Note 1	9	July 11
Standards	Mar. 21	Apr. 11	Mar. 21-May 1	May 2	May 2	Note 1	10	July 11
Pompons	Mar. 28	Apr. 18	Mar. 28-May 15	May 16	May 16	Note 1	9	July 18
Standards	Mar. 28	Apr. 18	Mar. 28-May 8	May 9	May 9	Note 1	10	July 18
Pompons	Apr. 4	Apr. 25	Apr. 4-May 22	May 23	May 23	Note 1	9	July 25
Standards	Apr. 4	Apr. 25	Apr. 4-May 15	May 16	May 16	Note 1	10	July 25
Pompons	Apr. 18	May 2	Apr. 18-May 29	May 30	May 30	Note 1	9	Aug. 1
Standards	Apr. 18	May 2	Apr. 18-May 22	May 23	May 23	Note 1	10	Aug. 1
Pompons	Apr. 25	May 9	Apr. 25-June 5	June 6	June 6	Note 1	9	Aug. 8
Standards	Apr. 25	May 9	Apr. 25-May 29	May 30	May 30	Note 1	10	Aug. 8
Pompons	May 2	May 16	May 2-June 12	June 13	June 13	Note 1	9	Aug. 15
Standards	May 2	May 16	May 2-June 5	June 6	June 6	Note 1	10	Aug. 15
Pompons	May 9	May 23	May 9-June 19	June 20	June 20	Note 1	9	Aug. 22
Standards	May 9	May 23	May 9-June 12	June 13	June 13	Note 1	10	Aug. 22
Pompons	May 16	May 30	May 16-June 26	June 27	June 27	Note 1	9	Aug. 29
Standards	May 16	May 30	May 16-June 19	June 20	June 20	Note 1	10	Aug. 29
Pompons	May 23	June 6	May 23-July 3	July 4	July 4	Note 1	9	Sept. 5
Standards	May 23	June 6	May 23-June 26	June 27	June 27	Note 1	10	Sept. 5
Pompons	May 30	June 13	May 30-July 10	July 11	July 11	Note 1	9	Sept. 12
Standards	May 30	June 13	May 30-July 3	July 4	July 4	Note 1	10	Sept. 12

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
(till Sept.)
Ind. White
(note 3)

Yellow

Good News
Imp. Ind. Yellow
(note 3)
Ind. Yellow (note 3)

Pink

Dk. Orchid Queen
Ind. Pink
(note 3)

Bronze

Detroit News
Dk. Ind. Bronze
(note 3)
Ind. Bronze (note 3)

Pompons

White

Keepsake
Popcorn
Silverstone

Yellow

Gold Coast
Golden Herald
Aztec
Starbright

Pink

Bluechip
Delight

Bronze

Jetfire
Gaiety

Warning: pink and bronze standards and pompons will fade badly at high temperatures.

A possible alternative for late summer pomps: use Keepsake, Yel. Beauregard, Delight or Bluechip, Beauregard or Jetfire. Use standard schedules (10 week) shown above. Suggest trials of Iceberg this period.

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
	June 6	June 20	June 6-July 10	July 11	July 11	Note 1	10	Sept. 19
	June 13	June 27	June 13-July 17	July 18	July 18	Note 1	10	Sept. 26
	June 20	July 4	June 20-July 24	July 25	July 25	Sept. 25	10	Oct. 3
	June 27	July 11	June 27-July 31	Aug. 1	Aug. 1	Sept. 25	10	Oct. 10
	July 4	July 18	July 4-Aug. 7	Aug. 8	Aug. 8	Sept. 25	10	Oct. 17
	July 11	July 25	July 11-Aug. 14	Aug. 15	Aug. 15	Sept. 25	10	Oct. 24
	July 18	Aug. 1	July 18-Aug. 21	Aug. 22	Aug. 22	Sept. 25	10	Oct. 31
	July 25	Aug. 8	July 25-Aug. 28	Aug. 29	Aug. 29	Sept. 25	10	Nov. 7
	Aug. 1	Aug. 15	Aug. 1-Sept. 4	Sept. 5	Sept. 5	Sept. 25	10	Nov. 14
	Aug. 8	Aug. 22	Aug. 8-Sept. 11	Sept. 12	Sept. 12	Sept. 25	10	Nov. 21
	Aug. 15	Aug. 29	Aug. 15-Sept. 18	Sept. 19	Sept. 19	Sept. 25	10	Nov. 28
	Aug. 22	Sept. 5	Aug. 22-Sept. 25	Sept. 26	No	—	10	Dec. 5
	Aug. 29	Sept. 12	Aug. 29-Oct. 2	Oct. 3	No	—	10	Dec. 12
	Aug. 29	Sept. 12	Aug. 29-Oct. 9	Oct. 10	No	—	10	Dec. 19
	Sept. 5	Sept. 19	Sept. 5-Oct. 16	Oct. 17	No	—	10	Dec. 26

VARIETIES for above schedules (Pompons on next page)

Standards

White

Ind. White

Yellow

Imp. Ind. Yellow
Ind. Yellow
Good News
(till Oct. 1)

Pink

Ind. Pink
Lavender Queen

Bronze

Dk. Ind. Bronze
Ind. Bronze
Detroit News
(till Sept. 1)

FOR GROWERS IN ZONE 3

VARIETIES for schedules on previous page

Pompons

White

Whitetop
Shasta
Ill. Igloo
Ill. Snowdrift
Pinocchio
Pacesetter
Iceberg

Yellow

Yel. Beauregard
Yellow Shasta
Mary Hall
(till Oct. 1)
Yel. Ill. Igloo
Aztec

Pink

Bluechip
Portrait
Delight
Bonnie

Bronze

Beauregard
Jetfire
Rubicon
Gaiety

	Plant Date ^a	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 12	Sept. 26	Sept. 12-Oct. 16	Oct. 17	No	—	11	Jan. 2, '58
Standards	Sept. 12	Sept. 26	Sept. 12-Oct. 23	Oct. 24	No	—	10	Jan. 2
Pompons	Sept. 19	Oct. 3	Sept. 19-Oct. 23	Oct. 24	No	—	11	Jan. 9
Standards	Sept. 19	Oct. 3	Sept. 19-Oct. 30	Oct. 31	No	—	10	Jan. 9
Pompons	Sept. 19	Oct. 3	Sept. 19-Oct. 30	Oct. 31	No	—	11	Jan. 16
Standards	Sept. 19	Oct. 3	Sept. 19-Nov. 6	Nov. 7	No	—	10	Jan. 16
Pompons	Sept. 26	Oct. 10	Sept. 26-Nov. 6	Nov. 7	No	—	11	Jan. 23
Standards	Sept. 26	Oct. 10	Sept. 26-Nov. 13	Nov. 14	No	—	10	Jan. 23
Pompons	Oct. 3	Oct. 17	Oct. 3-Nov. 13	Nov. 14	No	—	11	Jan. 30
Standards	Oct. 3	Oct. 17	Oct. 3-Nov. 20	Nov. 21	No	—	10	Jan. 30
Pompons	Oct. 10	Oct. 24	Oct. 10-Nov. 20	Nov. 21	No	—	11	Feb. 6
Standards	Oct. 10	Oct. 24	Oct. 10-Nov. 27	Nov. 28	No	—	10	Feb. 6
Pompons	Oct. 17	Oct. 31	Oct. 17-Nov. 27	Nov. 28	No	—	11	Feb. 13
Standards	Oct. 17	Oct. 31	Oct. 17-Dec. 4	Dec. 5	No	—	10	Feb. 13
Pompons	Oct. 24	Nov. 7	Oct. 24-Dec. 4	Dec. 5	No	—	11	Feb. 20
Standards	Oct. 24	Nov. 7	Oct. 24-Dec. 11	Dec. 12	No	—	10	Feb. 20
Pompons	Oct. 31	Nov. 14	Oct. 31-Dec. 11	Dec. 12	No	—	11	Feb. 27
Standards	Oct. 31	Nov. 14	Oct. 31-Dec. 18	Dec. 19	No	—	10	Feb. 27

VARIETIES for above schedules

Standards

White

Ind. White
Queens Lace
(after March 1)
White Mary Garden
(after March 1)

Pink

Ind. Pink
Lavender Queen

Yellow

Imp. Ind. Yellow
Ind. Yellow
Gold Lace
(after March 1)

Bronze

Ind. Bronze
Dk. Ind. Bronze

Pompons

White

Shasta
Whitetop
Iceberg
Paramount
Ill. Igloo
Ill. Snowdrift

Pink

Portrait
Almega
Pennant
Soprano
Masterpiece
Bonnie
Delight

Yellow

Yellow Shasta
Forty-Niner
Yel. Igloo
Yel. Paramount
Golden Chord
Yel. Beauregard

Bronze

Rusticon
Thelma
Rubicon
Beauregard



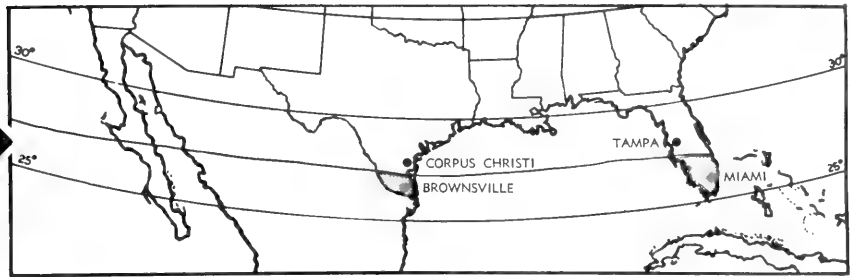
Year round Mum production under plastic—the San Francisco Bay Area, March 1956. The grower Yosh Nishimoto, Mountain View, California (above right), John Kyne, Geo. J. Ball representative, above left. Not clear in the photo, but the plastic is supported both above and below by 2 x 2½-inch wire mesh galvanized #18 ¾ gauge—about 1½¢ per square foot. The total cost for the structure, including hand operated vents, around 25¢ per square foot of ground. Houses of this type in the area have stood generally from November through May and have stood winds better than 55 miles per hour. Note steam pipes on ground.

2. For single stemmed crops, plant cuttings on pinch date.

ZONE 4

**FOR GROWERS
IN THIS AREA**

USE SCHEDULES
BELOW (Thru page 79)



	Plant Date*	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 20, '56	Oct. 11	Sept. 20-Oct. 31	Nov. 1	No	—	11	Jan. 17, '57
Standards	Sept. 20	Oct. 11	Sept. 20-Nov. 7	Nov. 8	No	—	10	Jan. 17
Pompons	Sept. 27	Oct. 18	Sept. 27-Nov. 7	Nov. 8	No	—	11	Jan. 24
Standards	Sept. 27	Oct. 18	Sept. 27-Nov. 14	Nov. 15	No	—	10	Jan. 24
Pompons	Oct. 4	Oct. 25	Oct. 4-Nov. 14	Nov. 15	No	—	11	Jan. 31
Standards	Oct. 4	Oct. 25	Oct. 4-Nov. 21	Nov. 22	No	—	10	Jan. 31
Pompons	Oct. 11	Nov. 1	Oct. 11-Nov. 21	Nov. 22	No	—	11	Feb. 7
Standards	Oct. 11	Nov. 1	Oct. 11-Nov. 28	Nov. 29	No	—	10	Feb. 7
Pompons	Oct. 18	Nov. 8	Oct. 18-Nov. 28	Nov. 29	No	—	11	Feb. 14
Standards	Oct. 18	Nov. 8	Oct. 18-Dec. 5	Dec. 6	No	—	10	Feb. 14
Pompons	Oct. 25	Nov. 15	Oct. 25-Dec. 5	Dec. 6	No	—	11	Feb. 21
Standards	Oct. 25	Nov. 15	Oct. 25-Dec. 12	Dec. 13	No	—	10	Feb. 21
Pompons	Nov. 1	Nov. 22	Nov. 1-Dec. 12	Dec. 13	No	—	11	Feb. 28
Standards	Nov. 1	Nov. 22	Nov. 1-Dec. 19	Dec. 20	No	—	10	Feb. 28
Pompons	Nov. 8	Nov. 29	Nov. 8-Dec. 19	Dec. 20	No	—	11	Mar. 7
Standards	Nov. 8	Nov. 29	Nov. 8-Dec. 26	Dec. 27	No	—	10	Mar. 7
Pompons	Nov. 15	Dec. 6	Nov. 15-Dec. 26	Dec. 27	No	—	11	Mar. 14
Standards	Nov. 15	Dec. 6	Nov. 15-Jan. 2	Jan. 3	No	—	10	Mar. 14
Pompons	Nov. 22	Dec. 13	Nov. 22-Jan. 2	Jan. 3	No	—	11	Mar. 21
Standards	Nov. 22	Dec. 13	Nov. 22-Jan. 9	Jan. 10	No	—	10	Mar. 21
Pompons	Nov. 29	Dec. 20	Nov. 29-Jan. 9	Jan. 10	No	—	11	Mar. 28
Standards	Nov. 29	Dec. 20	Nov. 29-Jan. 16	Jan. 17	No	—	10	Mar. 28

VARIETIES for above schedules

Standards

White

Ind. White

Pink

Ind. Pink

Pompons

White

Whitetop

Belray

Iceberg

Encore

White Taffeta

Shasta

Fortune (Must have
12 weeks short
days till flower)

Pink

Portrait

Taffeta

Bluechip

Pink Dot

Masterpiece

Almega

Bonnie

Yellow

Imp. Ind. Yellow

Ind. Yellow

Bronze

Dk. Ind. Bronze

Ind. Bronze

Yellow

Lollipop

Yel. Beauregard

Forty-Niner

(till Feb. 15)

Gold Ball

Yel. Highbrow

Yel. Shasta

Jealousy

Bronze

Beauregard

Rubicon

Rubaiyat

Bronze Dot



Year round pot Mums under plastic—Conroe, Texas (near Houston). The grower Carmen Walton (above right), of Walton Greenhouses. On the left, Arnold McCoy. Carmen has been flowering pot Mums continuously in this plastic house since December '55. Photo made late July '56. The roof of the new Tenite II has stood up perfectly so far. The house is equipped with pad-fan cooling which has provided both ventilation and cooling. Results so far: very good. The entire operation at Walton Greenhouses is under plastic—and more abuilding!

FOR GROWERS IN ZONE 4

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Dec. 13, '56	Jan. 3	Dec. 13-Jan. 23	Jan. 24	No	—	10	Apr. 4, '57
Dec. 20	Jan. 10	Dec. 20-Jan. 30	Jan. 31	Apr. 1	Note 1	10	Apr. 11
Dec. 27	Jan. 17	Dec. 27-Feb. 6	Feb. 7	Apr. 1	Note 1	10	Apr. 18
Jan. 3, '57	Jan. 24	Jan. 3-Feb. 13	Feb. 14	Apr. 1	Note 1	10	Apr. 25
Jan. 10	Jan. 31	Jan. 10-Feb. 20	Feb. 21	Apr. 1	Note 1	10	May 2
Jan. 17	Feb. 7	Jan. 17-Feb. 27	Feb. 28	Apr. 1	Note 1	10	May 9
Jan. 24	Feb. 14	Jan. 24-Mar. 6	Mar. 7	Apr. 1	Note 1	10	May 16
Jan. 31	Feb. 21	Jan. 31-Mar. 13	Mar. 14	Apr. 1	Note 1	10	May 23
Feb. 7	Feb. 28	Feb. 7-Mar. 20	Mar. 21	Apr. 1	Note 1	10	May 30

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
Ind. White

Yellow

Good News
Ind. Yellow

Pink

Dk. Orchid Queen
Ind. Pink

Bronze

(Not recommended for this period)

Pompons

White

Pristine
Whitetop
Iceberg
Encore
Ill. Igloo
Shasta
Alaska

Yellow

Yellow Beauregard
Gold Coast
Yel. Shasta
Yellow Igloo
Mary Hall
Crescendo
Yellow Highbrow
Jealousy

Pink

Bluechip
Bonnie
Portrait
Pink Dot

Bronze

Beauregard
Rubicon
Bronze Dot

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Feb. 14	Mar. 7	Feb. 14-Mar. 27	Mar. 28	Apr. 1	Note 1	10	June 6
Feb. 21	Mar. 14	Feb. 21-Apr. 3	Apr. 4	Apr. 4	Note 1	10	June 13
Feb. 28	Mar. 21	Feb. 28-Apr. 10	Apr. 11	Apr. 11	Note 1	10	June 20
Mar. 7	Mar. 28	Mar. 7-Apr. 17	Apr. 18	Apr. 18	Note 1	10	June 27
Mar. 14	Apr. 4	Mar. 14-Apr. 24	Apr. 25	Apr. 25	Note 1	10	July 4
Mar. 21	Apr. 11	Mar. 21-May 1	May 2	May 2	Note 1	10	July 11
Mar. 28	Apr. 18	Mar. 28-May 8	May 9	May 9	Note 1	10	July 18
Apr. 4	Apr. 25	Apr. 4-May 15	May 16	May 16	Note 1	10	July 25
Apr. 11	May 2	Apr. 11-May 22	May 23	May 23	Note 1	10	Aug. 1
Apr. 18	May 9	Apr. 18-May 29	May 30	May 30	Note 1	10	Aug. 8
Apr. 25	May 16	Apr. 25-June 5	June 6	June 6	Note 1	10	Aug. 15, '57
May 2	May 23	May 2-June 12	June 13	June 13	Note 1	10	Aug. 22
May 9	May 30	May 9-June 19	June 20	June 20	Note 1	10	Aug. 29
May 16	June 6	May 16-June 26	June 27	June 27	Note 1	10	Sept. 5
May 23	June 13	May 23-July 3	July 4	July 4	Note 1	10	Sept. 12
May 30	June 20	May 30-July 10	July 11	July 11	Note 1	10	Sept. 19
June 6	June 27	June 6-July 17	July 18	July 18	Note 1	10	Sept. 26

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross

Yellow

Good News

Pink

Dk. Orchid Queen

Bronze

(Not recommended)

Pompons

White

Pristine
Whitetop
Iceberg
Encore
Ill. Igloo
Shasta
Alaska

Yellow

Yellow Beauregard
Gold Coast
Yel. Shasta
Yellow Igloo
Mary Hall
Crescendo
Yellow Highbrow
Jealousy

Pink

Bluechip
Bonnie
Portrait
Pink Dot

Bronze

Beauregard
Rubicon
Bronze Dot

1. Stop shade on Pompons when buds show color; stop shade on October through May Standards when bud is size of a nickel; stop shade on June through September Standards when bud is taken.
2. For single stemmed crops, plant cuttings on pinch date.

FOR GROWERS IN ZONE 4

Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
June 13	July 4	June 13-July 24	July 25	July 25	Sept. 25	10	Oct. 3
June 20	July 11	June 20-July 31	Aug. 1	Aug. 1	Sept. 25	10	Oct. 10
June 27	July 18	June 27-Aug. 7	Aug. 8	Aug. 8	Sept. 25	10	Oct. 17
July 4	July 25	July 4-Aug. 14	Aug. 15	Aug. 15	Sept. 25	10	Oct. 24
July 11	Aug. 1	July 11-Aug. 21	Aug. 22	Aug. 22	Sept. 25	10	Oct. 31
July 18	Aug. 8	July 18-Aug. 28	Aug. 29	Aug. 29	Sept. 25	10	Nov. 7
July 25	Aug. 15	July 25-Sept. 4	Sept. 5	Sept. 5	Sept. 25	10	Nov. 14
Aug. 1	Aug. 22	Aug. 1-Sept. 11	Sept. 12	Sept. 12	Sept. 25	10	Nov. 21
Aug. 8	Aug. 29	Aug. 8-Sept. 18	Sept. 19	Sept. 19	Sept. 25	10	Nov. 28
Aug. 15	Sept. 5	Aug. 15-Sept. 25	Sept. 26	No	—	10	Dec. 5
Aug. 22	Sept. 12	Aug. 22-Oct. 2	Oct. 3	No	—	10	Dec. 12
Aug. 29	Sept. 19	Aug. 29-Oct. 9	Oct. 10	No	—	10	Dec. 19
Sept. 5	Sept. 26	Sept. 5-Oct. 16	Oct. 17	No	—	10	Dec. 26
Sept. 5	Sept. 26	Sept. 5-Oct. 23	Oct. 24	No	—	10	Jan. 2, '58
Sept. 12	Oct. 3	Sept. 12-Oct. 30	Oct. 31	No	—	10	Jan. 9

VARIETIES for above schedules

Standards

White

Gt. Betsy Ross
(till Oct. 1)

Ind. White (after Oct. 1)

Yellow

Good News

Ind. Yellow

(after Oct. 1)

Pink

Ind. Pink

(after Oct. 1)

Bronze

Detroit News

Dk. Ind. Bronze

Ind. Bronze (after Oct. 1)

Pompons

White

Whitetop

Pristine

Iceberg

Ill. Igloo

Shasta

Alaska

Yellow

Yel. Beaugard

Gold Coast

Yel. Shasta

Yel. Igloo

Mary Hall

Crescendo

Yellow Highbrow

Jealousy

Golden Herald

Pink

Bluechip

Bonnie

Portrait

Pink Dot

Bronze

Beaugard

Rubicon

Bronze Dot

	Plant Date ²	Pinch Date	Lighting Period	Lights Off	Start Shade	Stop Shade	Response Group	Flowering Date
Pompons	Sept. 19	Oct. 10	Sept. 19-Oct. 30	Oct. 31	No	—	11	Jan. 16, '58
Standards	Sept. 19	Oct. 10	Sept. 19-Nov. 6	Nov. 7	No	—	10	Jan. 16
Pompons	Sept. 26	Oct. 17	Sept. 26-Nov. 6	Nov. 7	No	—	11	Jan. 23
Standards	Sept. 26	Oct. 17	Sept. 26-Nov. 13	Nov. 14	No	—	10	Jan. 23
Pompons	Oct. 3	Oct. 24	Oct. 3-Nov. 13	Nov. 14	No	—	11	Jan. 30
Standards	Oct. 3	Oct. 24	Oct. 3-Nov. 20	Nov. 21	No	—	10	Jan. 30
Pompons	Oct. 10	Oct. 31	Oct. 10-Nov. 20	Nov. 21	No	—	11	Feb. 6
Standards	Oct. 10	Oct. 31	Oct. 10-Nov. 27	Nov. 28	No	—	10	Feb. 6
Pompons	Oct. 17	Nov. 7	Oct. 17-Nov. 27	Nov. 28	No	—	11	Feb. 13
Standards	Oct. 17	Nov. 7	Oct. 17-Dec. 4	Dec. 5	No	—	10	Feb. 13
Pompons	Oct. 24	Nov. 14	Oct. 24-Dec. 4	Dec. 5	No	—	11	Feb. 20
Standards	Oct. 24	Nov. 14	Oct. 24-Dec. 11	Dec. 12	No	—	10	Feb. 20
Pompons	Oct. 31	Nov. 21	Oct. 31-Dec. 11	Dec. 12	No	—	11	Feb. 27
Standards	Oct. 31	Nov. 21	Oct. 31-Dec. 18	Dec. 19	No	—	10	Feb. 27

VARIETIES for the above schedules

Standards

White

Ind. White

Yellow

Imp. Ind. Yellow

Ind. Yellow

Pink

Ind. Pink

Bronze

Dk. Ind. Bronze

Ind. Bronze

Pompons

White

Whitetop

Belray

Iceberg

Encore

Wh. Taffeta

Shasta

Fortune (Must have

12 weeks short

days till flower)

Yellow

Lollipop

Yel. Beaugard

Forty-Niner (till Feb. 15)

Gold Ball

Yel. Highbrow

Yel. Shasta

Jealousy

Pink

Portrait

Taffeta

Bluechip

Pink Dot

Masterpiece

Almega

Bonnie

Bronze

Beaugard

Rubicon

Rubaiyat

Bronze Dot

Pot Mums Round the Year



Pot mums are an important specialty at the well known Holton and Hunkel range, Milwaukee, Wisconsin. Here's manager Bill Grimmer shown with a fine example of Wilson's White—Aug. 22 (and no cooling). At maturity, 6 inch pot mums here get 1.3 sq. ft. each—one of the many little "tricks" on growing good plants. They flower year round, build up for the spring-fall holidays, taper off somewhat in January and August. All liquid feeding.

The past season has seen continued growth in the year round pot mum crop. The larger wholesale pot plant specialists continue to find a market for what they produce. You hear more and more of \$1.75 for a good 6 inch—rather than the customary \$1.50. Oddly enough, the biggest development in out of season pot growing seems to be among small to medium sized retail growers. A small but steady program of pot mum production with some build-up for the spring holidays and Thanksgiving seems to be a solid deal for these retail growers.

The biggest requirement here is temperature. A 60° house will do it, but 65 generally will give more uniform and prompt bud set. This, and the usual shade and light facilities are the main requirements.

As with cut flowers, our Ball Mum Planning Service will be glad to work out a continuous flowering pot plant program for you. See page 61 for details.

Modified Second Pinch

A "modified second pinch" has been tried by some growers. It's a very soft (high) pinch made 2-3 weeks after the first pinch. It results in more flowers per plant, perhaps 50-75% more—but all of them are smaller. Also the plant is a bit shorter and flowers 5 to 7 days later.

This pinch is made after 2 pairs of leaves have developed on the new shoots. Only the stronger shoots are pinched. Modified second pinch is only recommended for sunny seasons, not in winter.

No other change in schedule. Be sure this modified second pinch is made within 3 weeks of the start of short days.

Area Needed

For growers interested in an approximate amount of bench area needed for a given production of year round pot mums (6 inch):

To produce 50 pot mums every two weeks year round, about 380 sq. ft. of bench space will be needed. A small part of this area must be equipped for lighting; all of it must have enough heat to hold at least 60°, better 65°.

To produce 50 pots every two weeks, by the way, is a good minimum program for the retail grower. Much less total production and less frequent flowering is usually not too practical.

Temperatures—65° does it

Definitely we recommend 65° nights (70° cloudy days, 75° clear days) for off-season pot growing. We've tried 60°; you just don't get the even bud set and flower development that you do at 65°.

After color shows, we drop them to 55°, or even less if we're holding them for a holiday.

Plants too tall?

The old cure: keep 'em dry and starved. The new one: delayed pinch.

With this new trick, another product of our floriculture schools, we are able to regulate the final height of the plant almost at will.

The year round pot mum schedules that follow take full advantage of this delayed pinch idea. If, for any reason, your pot mums flower too tall, chances are that delaying the final pinch for 5 to 7 days more next year will bring them down.

Two other pointers on too tall plants:

1. **Crowding plants** unduly makes them grow tall and chimney shaped instead of spreading. Well-grown 6 inch pot mums should need and get 1 1/2 sq. ft. (15 x 15) in their final stages.

2. **Pinching:** with cut flowers, we get the strongest, most, and best breaks when we pinch only the top 1/2 inch or so out. Pot mum schedules are designed so that only 1 or 2 inches of new growth should normally occur prior to a pinch. However, due to delayed pinching, varying rates of growth, etc., plants may make up to 4-5 inches of new growth before the pinch. If only the tip of this is removed, a tall, leggy plant is coming your way. Only answer we find: cut them back to leave 2-3 inches of the new growth. In any case, leave two pairs of leaves.

Remember: new breaks are encouraged by ample nitrates, water, and sunlight (space). Most varieties if carefully grown can be kept so short they won't need staking.

Azalea pots, being somewhat shorter, are usually used for pot mums.

Several Suggestions

1. In potting Mum cuttings directly to the flowering pot (which is generally done), it helps to grade out the cuttings, putting the extra large ones together, etc. This makes for more uniformity.

2. Most good growers arrange the cuttings in a circle around the outer edge of the pot. This leaves more air and light at the center.

3. Another interesting new slant that has worked well for many growers: as the cuttings are planted into the pots, set them so that they point outwards at about a 45° angle rather than straight up. This will help still more in getting air and light into the center of the pot. It will tend to make the plant more spreading and bushy—less chimney shaped. Try it.

Plants too short?

In most sections, the retailers prefer a plant that measures 12 inches high, 12 inches across the top of the flower head—and with 12 flowers. Just remember "12 x 12 x 12".

Mainly in the case of Wilson's White and Granite State on winter crops, plants tend to flower **too short**. The year round pot schedules that follow have allowed several weeks more of long days (lighting period) than was formerly done—to lengthen the plants. A high soft pinch on these varieties will definitely help get them to flower taller and with more breaks per stem. The added weeks of light give the plants more time to develop substance.

About rapid growth

Needless to say, all we covered about humus, feeding, ample water, etc. under cut mums applies here—with interest! After all, we're growing a lot of plants in a handful of soil, and that takes some watching. Highlights:

1. **Humus:** one fourth peat. We steam the soil—a year's supply at a time.
2. **Feeding:** Phosphate added dry as peat-manure is mixed. Nitrate and potash applied weekly (in summer) as a liquid feed. Use same rates with 25-0-25 as for cut Mums. Some excellent pot Mum specialists feed every 3 days!
3. **Water**—be sure there's good drainage, then keep them well watered, especially as they get larger. That may mean every day in hot weather (twice in hot areas). If pots are set on muddy soil, it stops up drain holes. In potting don't fill the pot clear full. Leaving an inch will catch more water—reduce frequency of watering.

Disbudding

In most sections, competition demands that the 10 or 12 stems on a pot mum be disbudded to one flower per stem; also side shoots are removed down the stem. Exception: the garden varieties, or any pompon grown as a pot mum. They just won't make a bigger flower, even when disbudded.

TROUBLES—A Few of the Most Common

1. Uneven bud set?

The same problem as with cut mums. For winter-spring crops, we find 65° nights gives much more even bud set and development than 60°. Good quality, too.



Three inch spring garden Mums at Molesta's, Grand Rapids, Michigan. John Molesta shown above. The Molestas make something of a specialty of these 3 inch spring Mums. They are potted one cutting to a 3 inch pot about March 2, 60°, but no shade and no lights for the plant shown above—in flower early May. Details page 1. John says they move well in connection with their retail outlet. The Molestas also flower cut mums and pompons year round in connection with their retail trade.



Garden mums in smaller pots are becoming big sellers in the spring plant trade. Here's a 3-inch plant, Jiffy grown, pinched, and ready to go. More details on mums in spring trade, page 1.

2. Lower leaves dry up—why?

Several reasons. One very common one is foliar nematode or foliage diseases. Generally they are worse on outdoor grown plants.

Two other reasons: overcrowding and underfeeding. Under good care, the leaves should stay on, and stay green clear to the bottom. Poor drainage seems to affect them, too.

3. Can't get over 1 or 2 breaks per cutting

As with any plant, the three main requirements for generous and prompt breaking are plenty of nitrate and potash, plenty of water, and ample sunlight (meaning generous spacing). Varieties differ—Bonnaffon is good. We put one more cutting per pot of poor breakers.

A good, soft cutting will always break better than a hard, wiry one.

4. Flowers rot as they open

Much the same story as with cut mums.

Several pot mum growers report good control with Parzate dust—every 3 days. Some shade in hot weather helps.

ABOUT SINGLE STEM POT MUMS

We don't recommend to any grower that he go over 100% to single stem pot Mums. But there are some angles to them that may fit your trade. The pros and cons as we see them:

Let's put down the disadvantages first. Mainly it's more cuttings—probably seven to a 6 inch pot against five for the same plant pinched. Net loss: two cuttings.

On the credit side:

1. Large, showy blooms—Indianapolis White, for example, makes fine large, showy blooms that would average 1/3 to 1/2 larger than the same variety pinched. They're really quite striking. It's a deluxe plant, but still finished in a six. Individual flowers ran 5 1/2 to 6 inches in our trials. If competition in pot mums is hot on your heels, perhaps this is a way to "have the best."
2. Ordinarily, no pinch plants do not require tying. They are short, and having more plants per pot than pinched plants, tend to stand up better.
3. No more problem of getting enough breaks per plant. Indianapolis is bad on this, but nice grown "no pinch."
4. You save several weeks time on the bench—and the labor of pinching and tying, too, of course.

Here's How:

Plant 5-7 cuttings per 6" pot; no long days. Start short days soon as cuttings are potted. Do not pinch. Salable pot plant in 9 1/2-10 weeks. Dark Indianapolis Yellow and Indianapolis White are best for this treatment!

Use only varieties that are normally quite short growers. The Maekawa Brothers in Seattle find that by keeping the plants on the hungry side till buds show, they flower shorter.

See page 1 for garden Mums in spring.

Pot Plant Schedules

ABOUT "SHORT PROCEDURE"

In the descriptions (in the general variety list) each of the new 1957 pot mums is classified as "short procedure," "medium procedure," or "tall procedure." A "short procedure" variety is one that naturally tends to be quite short (Wilson's White, Delaware). These varieties generally need 2 or 3 or more weeks of lights for winter flowering to make them **tall** enough. The "tall procedure" kinds are those that are really compact growing enough for pot use, but which tend to be taller than the real short ones such as Wilson's White. Especially on summer-fall flowerings, they must be given no long days (shade same day they are potted)—and pinch must be delayed—to keep them from being **too tall**. The Indianapolis varieties are considered "tall procedure" types.

The tables that follow are based on these "short," "medium," and "tall" procedure schedules. They tend to make the very short ones some taller in winter (more so than our last year schedules)—and to make the tall ones shorter in late summer-early fall. The varieties selected are those generally considered best for the period concerned.

Growers who specialize in pot mums may be interested in more details on these "short-medium-tall" schedules. A postcard request to our Ball Mum Planning Service will bring full schedules for all varieties recommended for pot growing covering all seasons. No charge.



A mighty nice bench of pot Mums as grown by Bill De Jong, De Jong Greenhouses, Pella, Iowa. Bill is shown above holding one of his plants. The entire range was cooled this summer, using pad-fan cooling, and Bill is extremely enthusiastic about the results. He says it not only keeps pot Mums flowering during hot weather, but avoids the overload that used to occur after a period of heat delay—before cooling. Bill is equally enthusiastic about the improvement on Roses, Poinsettias, and Gloxinias under cooling.

NUMBER OF CUTTINGS PER POT

To insure a well filled out plant, five cuttings for a 6 inch pot is generally recommended (for single pinch). A few varieties that tend to break more freely (Bonaffon Deluxe) can be grown 4 to a six. Because breaks come more freely during the summer months, a few growers go to 4 cuttings per pot on those flowered from August thru November. However, the competitive market during the fall in many areas requires a well filled out plant that can be only accomplished by use of five cuttings per pot. Poor breakers like Indianapolis and Humdinger are apt to be thin even then with four cuttings.

Incidentally, many growers in the Northwest grow as many as half of their pot mums in **five** inch pots—and even some 4's. Bill De Jong, Pella, Iowa, grows four in quantity, two cuttings per pot, eight flowers (Bonaffon). 90c wholesale.

ATTENTION SOUTHERN GROWERS:

In any areas where winters are quite sunny, open, and warm, the schedules given in the tables that follow will tend to make excessively tall plants during the winter season. In such areas, better results will be obtained if the late summer schedules given here are used year round—with perhaps one extra week of lighting added for plants to flower between January 1 and April 1.

The taller kinds (Indianapolis, Copperhead, Pacesetter) are given **no long day period** at all (even in winter) by many growers in these "sunny winter" areas. This means no lights, and in summer, shade same day cuttings are potted.

To further insure against excessive height, pinch is delayed till two weeks (winter) after potting or three weeks (summer-fall crops).

Shorter growing varieties (Delaware, Wilson's White) are given one week of lights on crops to be flowered December 15 thru March 1. Rest of the year: no long days.

Single stem growing (mostly Indianapolis) is practiced quite extensively—no lights at any time of year. Indianapolis has less of a long exposed neck grown no pinch.

For any variety anywhere anytime of the year, if plants are too tall, change the schedule next year to:

1. Provide fewer (or no) long days between potting and shading (or lights off).
2. Delay the pinch still more. Up to two or three weeks between start of short days and pinch date is not uncommon.

Don't forget that other things cause tall plants: crowding, dirty glass, rooting thru the drain hole, heat delay in summer—and use of too tall varieties.

Our Ball Mum Planning Service staff and your local Ball representative are familiar with the above problem—drop us a line and we will be glad to go over **your** particular scheduling problem.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
Dec. 27 Jan. 3	Granite State, Luna, Wilson's White and Yellow Delaware, Oregon, Yel. Delaware.....	Oct. 4	Oct. 18	Oct. 4-Oct. 24	No
Dec. 6 Dec. 13 Dec. 20 Dec. 27	Blazing Gold Monty, Queen of Pinks, Blue Ribbon..... Criterion, Portrait Varieties, Humdinger.. Bon. Deluxe	Oct. 4	Oct. 11	Oct. 4-Oct. 10	No
Dec. 6 Dec. 13 Dec. 20 Dec. 24	Sunburst Lace Varieties Pacesetter, Little America, Yel. Pacesetter Indianapolis Varieties	Oct. 4	Oct. 25	Oct. 4-Oct. 10	No
Jan. 3, '57 Jan. 10	Granite State, Luna, Wilson's White and Yellow Delaware, Oregon, Yel. Delaware.....	Oct. 4	Oct. 25	Oct. 4-Oct. 31	No
Dec. 13 Dec. 20 Dec. 27 Jan. 3	Blazing Gold Monty, Queen of Pinks, Blue Ribbon..... Criterion, Portrait Varieties, Humdinger.. Bon. Deluxe	Oct. 4	Oct. 18	Oct. 4-Oct. 17	No
Jan. 10 Jan. 17	Granite State, Luna, Wilson's White and Yellow Delaware, Oregon, Yel. Delaware.....	Oct. 11	Nov. 1	Oct. 11-Nov. 7	No
Dec. 27 Jan. 3 Jan. 10	Queen of Pinks, Blue Ribbon..... Criterion, Portrait Varieties, Humdinger.. Bon. Deluxe	Oct. 11	Oct. 25	Oct. 11-Oct. 24	No
Dec. 13 Dec. 20 Dec. 27 Dec. 31	Sunburst Lace Varieties Pacesetter, Little America, Yel. Pacesetter Indianapolis Varieties	Oct. 11	Nov. 1	Oct. 11-Oct. 17	No
Jan. 17 Jan. 24	Granite State, Luna, Wilson's White and Yellow Delaware, Oregon, Yel. Delaware.....	Oct. 18	Nov. 8	Oct. 18-Nov. 14	No
Jan. 3 Jan. 10 Jan. 17	Queen of Pinks, Blue Ribbon..... Criterion, Portrait Varieties, Humdinger.. Bon. Deluxe	Oct. 18	Nov. 1	Oct. 18-Oct. 31	No
Dec. 20 Dec. 27 Jan. 3 Jan. 7	Sunburst Lace Varieties Pacesetter, Little America, Yel. Pacesetter Indianapolis Varieties	Oct. 18	Nov. 8	Oct. 18-Oct. 24	No
Jan. 24 Jan. 31	Granite State, Luna, Wilson's White and Yellow Delaware, Oregon, Yel. Delaware.....	Oct. 25	Nov. 15	Oct. 25-Nov. 21	No
Jan. 10 Jan. 17 Jan. 24	Queen of Pinks, Blue Ribbon..... Criterion, Portrait Varieties, Humdinger.. Bon. Deluxe	Oct. 25	Nov. 8	Oct. 25-Nov. 7	No
Jan. 3 Jan. 10 Jan. 14	Lace Varieties Pacesetter, Little America, Yel. Pacesetter Indianapolis Varieties	Oct. 25	Nov. 15	Oct. 25-Oct. 31	No
Jan. 31 Feb. 7	Granite State, Luna, Wilson's White and Yellow Delaware, Oregon, Yel. Delaware.....	Nov. 1	Nov. 22	Nov. 1-Nov. 28	No
Jan. 10 Jan. 17 Jan. 24 Jan. 31	Blazing Gold Queen of Pinks, Blue Ribbon..... Criterion, Portrait Varieties, Humdinger.. Bon. Deluxe	Nov. 1	Nov. 15	Nov. 1-Nov. 14	No
Jan. 10 Jan. 17 Jan. 21	Lace Varieties Pacesetter, Little America, Yel. Pacesetter Indianapolis Varieties	Nov. 1	Nov. 22	Nov. 1-Nov. 7	No

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
Feb. 7	Granite State, Luna, Wilson's White and Yellow	Nov. 8	Nov. 29	Nov. 8-Dec. 5	No
Feb. 14	Delaware, Oregon, Yel. Delaware.....				
Jan. 24	Queen of Pinks, Blue Ribbon.....	Nov. 8	Nov. 22	Nov. 8-Nov. 21	No
Jan. 31	Criterion, Portrait Varieties, Humdinger..				
Feb. 7	Bon. Deluxe				
Jan. 17	Lace Varieties	Nov. 8	Nov. 29	Nov. 8-Nov. 14	No
Jan. 24	Pacesetter, Little America, Yel. Pacesetter				
Jan. 28	Indianapolis Varieties				
Feb. 14	Granite State, Luna, Wilson's White and Yellow	Nov. 15	Dec. 6	Nov. 15-Dec. 12	No
Feb. 21	Delaware, Oregon, Yel. Delaware.....				
Jan. 31	Queen of Pinks, Blue Ribbon.....	Nov. 15	Nov. 29	Nov. 15-Nov. 28	No
Feb. 7	Criterion, Portrait Varieties, Humdinger..				
Feb. 14	Bon. Deluxe				
Jan. 24	Lace Varieties	Nov. 15	Dec. 6	Nov. 15-Nov. 21	No
Jan. 31	Pacesetter, Little America, Yel. Pacesetter				
Feb. 4	Indianapolis Varieties				
Feb. 21	Granite State, Luna, Wilson's White and Yellow	Nov. 22	Dec. 13	Nov. 22-Dec. 19	No
Feb. 28	Delaware, Oregon, Yel. Delaware.....				
Feb. 7	Queen of Pinks, Blue Ribbon.....	Nov. 22	Dec. 6	Nov. 22-Dec. 5	No
Feb. 14	Criterion, Portrait Varieties, Humdinger..				
Feb. 21	Bon. Deluxe				
Jan. 31	Lace Varieties	Nov. 22	Dec. 13	Nov. 22-Nov. 28	No
Feb. 7	Pacesetter, Little America, Yel. Pacesetter				
Feb. 11	Indianapolis Varieties				
Feb. 28	Granite State, Luna, Wilson's White and Yellow	Nov. 29	Dec. 20	Nov. 29-Dec. 26	No
March 7	Delaware, Oregon, Yel. Delaware.....				
Feb. 14	Queen of Pinks, Blue Ribbon.....	Nov. 29	Dec. 13	Nov. 29-Dec. 12	No
Feb. 21	Criterion, Portrait Varieties, Humdinger..				
Feb. 28	Bon. Deluxe				
Feb. 7	Lace Varieties	Nov. 29	Dec. 20	Nov. 29-Dec. 5	No
Feb. 14	Pacesetter, Little America, Yel. Pacesetter				
Feb. 18	Indianapolis Varieties				
March 7	Granite State, Luna, Wilson's White and Yellow	Dec. 6	Dec. 27	Dec. 6-Jan. 2	No
March 14	Delaware, Oregon, Yel. Delaware.....				
Feb. 14	Blazing Gold	Dec. 6	Dec. 20	Dec. 6-Dec. 19	No
Feb. 21	Queen of Pinks, Blue Ribbon.....				
Feb. 28	Criterion, Portrait Varieties, Humdinger..				
March 7	Bon. Deluxe	Dec. 6	Dec. 27	Dec. 6-Dec. 12	No
Feb. 14	Lace Varieties				
Feb. 21	Pacesetter, Little America, Yel. Pacesetter				
Feb. 25	Indianapolis Varieties				
March 14	Granite State, Luna, Wilson's White and Yellow	Dec. 13	Jan. 3	Dec. 13-Jan. 9	No
March 21	Delaware, Oregon, Yel. Delaware.....				
Feb. 28	Monty, Queen of Pinks, Blue Ribbon.....	Dec. 13	Dec. 27	Dec. 13-Dec. 26	No
March 7	Criterion, Humdinger, Personality.....				
March 14	Bon. Deluxe				
Feb. 21	Lace Varieties	Dec. 13	Jan. 3	Dec. 13-Dec. 19	No
Feb. 28	Pacesetter, Little America, Yel. Pacesetter				
March 4	Indianapolis Varieties				

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
March 21	Granite State, Luna, Wilson's White and Yellow	Dec. 20	Jan. 10	Dec. 20-Jan. 16	No
March 28	Delaware, Oregon, Yel. Delaware.....				
Feb. 28	Gardenia	Dec. 20	Jan. 3	Dec. 20-Jan. 2	No
March 7	Monty, Queen of Pinks, Blue Ribbon.....				
March 14	Criterion, Humdinger, Personality.....				
March 21	Bon. Deluxe				
Feb. 28	Lace Varieties	Dec. 20	Jan. 10	Dec. 20-Dec. 26	No
March 7	Pacesetter, Portrait Varieties, Little America, Ill. Snowdrift, Yel. Pacesetter				
March 11	Indianapolis Varieties				
March 28	Granite State, Luna, Wilson's White and Yellow	Dec. 27	Jan. 17	Dec. 27-Jan. 23	March 15
April 4	Delaware, Oregon, Yel. Delaware.....				
March 7	Gardenia	Dec. 27	Jan. 10	Dec. 27-Jan. 9	No
March 14	Monty, Queen of Pinks, Blue Ribbon.....				
March 21	Criterion, Humdinger, Personality.....				
March 28	Bon. Deluxe				
Feb. 28	Sunburst	Dec. 27	Jan. 17	Dec. 27-Jan. 2	No
March 7	Lace Varieties				
March 14	Pacesetter, Portrait Varieties, Little America, Ill. Snowdrift, Yel. Pacesetter				
March 18	Indianapolis Varieties				
April 4	Granite State, Luna, Wilson's White and Yellow	Jan. 3	Jan. 24	Jan. 3-Jan. 30	March 15
April 11	Delaware, Oregon, Yel. Delaware.....				
March 21	Monty, Queen of Pinks, Blue Ribbon.....	Jan. 3	Jan. 17	Jan. 3-Jan. 16	March 15
March 28	Criterion, Personality				
April 4	Bon. Deluxe				
March 14	Lace Varieties	Jan. 3	Jan. 24	Jan. 3-Jan. 9	No
March 21	Pacesetter, Portrait Varieties, Humdinger, Little America, Ill. Snowdrift, Yel. Pacesetter				
March 25	Indianapolis Varieties				
April 11	Granite State, Luna, Wilson's White and Yellow	Jan. 10	Jan. 31	Jan. 10-Feb. 6	March 15
April 18	Delaware, Oregon, Yel. Delaware.....				
March 28	Monty, Queen of Pinks, Blue Ribbon.....	Jan. 10	Jan. 24	Jan. 10-Jan. 23	March 15
April 4	Criterion, Calypso Varieties, Personality..				
April 11	Bon. Deluxe				
March 21	Lace Varieties	Jan. 10	Jan. 31	Jan. 10-Jan. 16	March 15
March 28	Pacesetter, Portrait Varieties, Little America, Ill. Snowdrift, Humdinger, Yel. Pacesetter				
April 1	Indianapolis Varieties				
April 18	Granite State, Luna, Wilson's White and Yellow	Jan. 17	Feb. 7	Jan. 17-Feb. 13	March 15
April 25	Delaware, Oregon, Yel. Delaware.....				
April 4	Monty, Queen of Pinks, Blue Ribbon.....	Jan. 17	Jan. 31	Jan. 17-Jan. 30	March 15
April 11	Criterion, Calypso Varieties, Personality..				
April 18	Bon. Deluxe				
March 28	Lace Varieties	Jan. 17	Feb. 7	Jan. 17-Jan. 23	March 15
April 4	Pacesetter, Portrait Varieties, Humdinger, Little America, Ill. Snowdrift, Yel. Pacesetter				
April 8	Indianapolis Varieties				

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
April 25 May 2	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware	Jan. 24	Feb. 14	Jan. 24-Feb. 20	March 15
April 11 April 18 April 25	Monty, Queen of Pinks, Blue Ribbon..... Criterion, Calypso Varieties, Personality.. Bon. Deluxe	Jan. 24	Feb. 7	Jan. 24-Feb. 6	March 15
April 4 April 11 April 15	Lace Varieties Pacesetter, Portrait Varieties, Humdinger, Ill. Snowdrift, Yel. Pacesetter..... Indianapolis Varieties	Jan. 24	Feb. 14	Jan. 24-Jan. 30	March 15
May 2 May 9	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	Jan. 31	Feb. 21	Jan. 31-Feb. 27	March 15
April 11 April 18 April 25 May 2	Blazing Gold, Georgia, Gardenia..... Monty, Queen of Pinks, Blue Ribbon..... Criterion, Calypso Varieties, Personality... Bon. Deluxe	Jan. 31	Feb. 14	Jan. 31-Feb. 13	March 15
April 11 April 18 April 22	Lace Varieties Pacesetter, Portrait Varieties, Humdinger, Ill. Snowdrift, Yel. Pacesetter..... Indianapolis Varieties	Jan. 31	Feb. 21	Jan. 31-Feb. 6	March 15
May 9 May 16	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	Feb. 7	Feb. 28	Feb. 7-March 6	March 15
April 18 April 25 May 2 May 9	Georgia, Gardenia, Blazing Gold..... Monty, Queen of Pinks, Blue Ribbon..... Criterion, Calypso Varieties, Personality... Bon. Deluxe	Feb. 7	Feb. 21	Feb. 7-Feb. 20	March 15
April 11 April 18 April 25 April 29	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Humdinger, Ill. Snowdrift, Yel. Pacesetter..... Indianapolis Varieties	Feb. 7	Feb. 28	Feb. 7-Feb. 13	March 15
May 16 May 23	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	Feb. 14	March 7	Feb. 14-March 13	March 15
April 25 May 2 May 9 May 16	Georgia, Gardenia, Blazing Gold..... Monty, Blue Ribbon Criterion, Calypso Varieties, Personality... Bon. Deluxe	Feb. 14	Feb. 28	Feb. 14-Feb. 27	March 15
April 18 April 25 May 2 May 6	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Humdinger, Ill. Snowdrift, Yel. Pacesetter..... Indianapolis Varieties	Feb. 14	March 7	Feb. 14-Feb. 20	March 15
May 2 May 9 May 16 May 23	Blazing Gold, Georgia, Gardenia..... Monty, Blue Ribbon..... Criterion, Calypso Varieties, Personality... Bon. Deluxe	Feb. 21	March 7	Feb. 21-March 6	March 15
April 25 May 2 May 9 May 13	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Ill. Snow- drift, Yel. Pacesetter..... Indianapolis Varieties	Feb. 21	March 14	Feb. 21-Feb. 27	March 15

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
May 23 May 30	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	Feb. 28	March 14	Feb. 28-March 20	March 21
May 9 May 16 May 23 May 30	Blazing Gold, Georgia, Gardenia..... Monty, Blue Ribbon Criterion, Calypso Varieties, Personality... Bon. Deluxe	Feb. 28	March 14	Feb. 28-March 13	March 15
May 2 May 9 May 16 May 20	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Ill. Snowdrift, Yel. Pacesetter Indianapolis Varieties	Feb. 28	March 21	Feb. 28-March 6	March 15
May 30 June 6	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	March 7	March 21	March 7-March 27	March 28
May 16 May 23 May 30 June 6	Georgia, Gardenia, Blazing Gold..... Monty, Blue Ribbon Criterion, Calypso Varieties, Personality... Bon. Deluxe	March 7	March 21	March 7-March 20	March 21
May 9 May 16 May 23 May 27	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Ill. Snowdrift, Yel. Pacesetter Indianapolis Varieties	March 7	March 28	March 7-March 13	March 15
June 6 June 13	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	March 14	March 28	March 14-April 3	April 4
May 23 May 30 June 6 June 13	Georgia, Gardenia, Blazing Gold..... Monty, Blue Ribbon Criterion, Calypso Varieties, Personality... Bon. Deluxe	March 14	March 28	March 14-March 27	March 28
May 16 May 23 May 30	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Ill. Snowdrift, Yel. Pacesetter	March 14	April 4	March 14-March 20	March 21
June 13 June 20	Granite State, Luna, Wilson's White and Yellow Oregon, Yel. Delaware.....	March 21	April 4	March 21-April 10	April 11
May 30 June 6 June 13 June 20	Georgia, Gardenia, Blazing Gold..... Monty, Blue Ribbon Criterion, Calypso Varieties, Personality... Bon. Deluxe	March 21	April 4	March 21-April 3	April 4
May 23 May 30 June 6	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Yel. Pacesetter	March 21	April 11	March 21-March 27	March 28
May 30 June 6 June 13	Sunburst Lace Varieties Pacesetter, Portrait Varieties, Yel. Pacesetter	March 28	April 18	March 28-April 3	April 4

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
June 20	Granite State, Luna, Wilson's White and Yellow	April 4	April 11	April 4-April 17	April 18
June 27	Oregon, Yel. Delaware.....				
June 6	Blazing Gold, Georgia, Gardenia.....	April 4	April 11	April 4-April 10	April 11
June 13	Monty, Blue Ribbon				
June 20	Criterion, Calypso Varieties, Portrait Varieties, Personality				
June 27	Bon. Deluxe				
June 27	Granite State, Luna, Wilson's White and Yellow	April 11	April 18	April 11-April 24	April 25
July 4	Oregon, Yel. Delaware.....				
June 13	Georgia, Gardenia, Blazing Gold.....	April 11	April 18	April 11-April 17	April 18
June 20	Monty, Blue Ribbon				
June 27	Criterion, Portrait Varieties, Calypso Varieties, Personality				
July 4	Bon. Deluxe				
June 6	Sunburst	April 11	April 18	No	April 11
June 13	Lace Varieties				
June 20	Pacesetter, Yel. Pacesetter				
July 4	Granite State, Luna, Wilson's White and Yellow	April 18	April 25	April 18-May 1	May 2
July 11	Oregon, Yel. Delaware.....				
June 20	Georgia, Gardenia, Blazing Gold.....	April 18	April 25	April 18-April 24	April 25
June 27	Monty, Blue Ribbon				
July 4	Criterion, Portrait Varieties				
July 11	Bon. Deluxe				
June 13	Sunburst	April 18	April 25	No	April 18
June 20	Lace Varieties				
June 27	Pacesetter, Yel. Pacesetter				
July 11	Granite State, Luna, Wilson's White and Yellow	April 25	May 2	April 25-May 8	May 9
July 18	Oregon, Yel. Delaware.....				
June 27	Georgia, Gardenia, Blazing Gold.....	April 25	May 2	April 25-May 1	May 2
July 4	Monty, Blue Ribbon				
July 11	Criterion, Portrait Varieties				
July 18	Bon. Deluxe				
June 20	Sunburst	April 25	May 2	No	April 25
June 27	Lace Varieties				
July 4	Pacesetter, Yel. Pacesetter				
July 18	Granite State, Luna, Wilson's White and Yellow	May 2	May 9	May 2-May 15	May 16
July 25	Oregon, Yel. Delaware.....				
July 4	Blazing Gold, Georgia, Gardenia.....	May 2	May 9	May 2-May 8	May 9
July 11	Monty, Blue Ribbon				
July 18	Criterion, Portrait Varieties				
July 25	Bon. Deluxe				
June 27	Sunburst	May 2	May 9	No	May 2
July 11	Pacesetter, Yel. Pacesetter				
July 25	Granite State, Luna, Wilson's White and Yellow	May 9	May 16	May 9-May 22	May 23
Aug. 1	Yel. Delaware				
July 11	Georgia, Gardenia, Blazing Gold.....	May 9	May 16	May 9-May 15	May 16
July 18	Monty, Blue Ribbon				
July 25	Criterion, Portrait Varieties				
Aug. 1	Bon. Deluxe				
July 4	Sunburst	May 9	May 16	No	May 9
July 18	Pacesetter, Yel. Pacesetter				

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
Aug. 1	Granite State, Luna, Wilson's White and Yellow	May 16	May 23	May 16-May 29	May 30
Aug. 8	Yel. Delaware				
July 18	Georgia, Gardenia, Blazing Gold.....	May 16	May 23	May 16-May 22	May 23
July 25	Monty, Blue Ribbon				
Aug. 1	Criterion, Portrait Varieties				
Aug. 8	Bon. Deluxe				
July 11	Sunburst	May 16	May 23	No	May 16
July 25	Pacesetter, Yel. Pacesetter				
Aug. 8	Granite State, Luna, Wilson's White and Yellow	May 23	May 30	May 23-May 31	June 6
Aug. 15	Yel. Delaware				
July 25	Georgia, Gardenia, Blazing Gold.....	May 23	May 30	May 23-May 29	May 30
Aug. 1	Monty, Blue Ribbon				
Aug. 8	Criterion, Portrait Varieties				
Aug. 15	Bon. Deluxe				
July 18	Sunburst	May 23	May 30	No	May 23
Aug. 1	Pacesetter, Yel. Pacesetter				
Aug. 15	Granite State, Luna, Wilson's White and Yellow	May 30	June 6	May 30-May 31	June 13
Aug. 22	Yel. Delaware				
Aug. 1	Georgia, Gardenia, Blazing Gold.....	May 30	June 6	May 30-May 31	June 6
Aug. 8	Monty, Blue Ribbon				
Aug. 15	Criterion, Portrait Varieties				
Aug. 22	Bon. Deluxe				
July 25	Sunburst	May 30	June 6	No	May 30
Aug. 8	Pacesetter, Yel. Pacesetter				
Aug. 22	Granite State, Luna, Wilson's White and Yellow	June 6	June 13	No	June 20
Aug. 29	Yel. Delaware				
Aug. 8	Blazing Gold, Georgia, Gardenia.....	June 6	June 13	No	June 13
Aug. 15	Monty, Blue Ribbon				
Aug. 22	Criterion, Portrait Varieties				
Aug. 29	Bon. Deluxe				
Aug. 1	Sunburst	June 6	June 13	No	June 6
Aug. 15	Pacesetter, Yel. Pacesetter				
Aug. 29	Granite State, Luna, Wilson's White and Yellow	June 13	June 20	No	June 27
Sept. 5	Oregon, Yel. Delaware.....				
Aug. 15	Georgia, Gardenia, Blazing Gold.....	June 13	June 20	No	June 20
Aug. 22	Monty, Blue Ribbon				
Aug. 29	Criterion, Portrait Varieties				
Sept. 5	Bon. Deluxe				
Aug. 8	Sunburst	June 13	June 20	No	June 13
Aug. 22	Pacesetter, Yel. Pacesetter				
Sept. 5	Granite State, Luna, Wilson's White and Yellow	June 20	June 27	No	July 4
Sept. 12	Oregon, Yel. Delaware.....				
Aug. 22	Georgia, Gardenia, Blazing Gold.....	June 20	June 27	No	June 27
Aug. 29	Monty, Blue Ribbon				
Sept. 5	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Sept. 12	Bon. Deluxe				
Aug. 15	Sunburst	June 20	June 27	No	June 20
Aug. 29	Pacesetter, Yel. Pacesetter				
Sept. 2	Indianapolis Varieties				

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
Sept. 12	Granite State, Luna, Wilson's White and Yellow	June 27	July 4	No	July 11
Sept. 19	Delaware, Oregon, Yel. Delaware.....				
Aug. 29	Georgia, Gardenia, Blazing Gold.....	June 27	July 4	No	July 4
Sept. 5	Monty, Blue Ribbon				
Sept. 12	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Sept. 19	Bon. Deluxe				
Aug. 22	Sunburst	June 27	July 4	No	June 27
Sept. 5	Pacesetter, Yel. Pacesetter				
Sept. 9	Indianapolis Varieties				
Sept. 19	Granite State, Luna, Wilson's White and Yellow	July 4	July 11	July 15-July 17	July 18
Sept. 26	Delaware, Oregon, Yel. Delaware.....				
Sept. 5	Blazing Gold, Georgia, Gardenia.....	July 4	July 11	No	July 11
Sept. 12	Monty, Queen of Pinks, Blue Ribbon.....				
Sept. 19	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Sept. 26	Bon. Deluxe				
Aug. 29	Sunburst	July 4	July 11	No	July 4
Sept. 12	Pacesetter, Yel. Pacesetter				
Sept. 16	Indianapolis Varieties				
Sept. 26	Granite State, Luna, Wilson's White and Yellow	July 11	July 18	July 15-July 24	July 25
Oct. 3	Delaware, Oregon, Yel. Delaware.....				
Sept. 12	Georgia, Gardenia, Blazing Gold.....	July 11	July 18	July 15-July 17	July 18
Sept. 19	Monty, Queen of Pinks, Blue Ribbon.....				
Sept. 26	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Oct. 3	Bon. Deluxe				
Sept. 5	Sunburst	July 11	July 18	No	July 11
Sept. 19	Pacesetter, Yel. Pacesetter				
Sept. 23	Indianapolis Varieties				
Oct. 3	Granite State, Luna, Wilson's White and Yellow	July 18	July 25	July 18-July 31	Aug. 1
Oct. 10	Delaware, Oregon, Yel. Delaware.....				
Sept. 19	Georgia, Gardenia, Blazing Gold.....	July 18	July 25	July 18-July 24	July 25
Sept. 26	Monty, Queen of Pinks, Blue Ribbon.....				
Oct. 3	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Oct. 10	Bon. Deluxe				
Sept. 12	Sunburst	July 18	July 25	No	July 18
Sept. 26	Pacesetter, Little America, Yel. Pacesetter				
Sept. 30	Indianapolis Varieties				
Oct. 10	Granite State, Luna, Wilson's White and Yellow	July 25	Aug. 1	July 25-Aug. 7	Aug. 8
Oct. 17	Delaware, Oregon, Yel. Delaware.....				
Sept. 26	Georgia, Gardenia, Blazing Gold.....	July 25	Aug. 1	July 25-July 31	Aug. 1
Oct. 3	Monty, Queen of Pinks, Blue Ribbon.....				
Oct. 10	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Oct. 17	Bon. Deluxe				
Sept. 19	Sunburst	July 25	Aug. 1	No	July 25
Oct. 3	Pacesetter, Little America, Yel. Pacesetter				
Oct. 7	Indianapolis Varieties				

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
Oct. 17	Granite State, Luna, Wilson's White and Yellow	Aug. 1	Aug. 8	Aug. 1-Aug. 14	Aug. 15
Oct. 24	Delaware, Oregon, Yel. Delaware.....				
Oct. 3	Blazing Gold, Georgia, Gardenia.....	Aug. 1	Aug. 8	Aug. 1-Aug. 7	Aug. 8
Oct. 10	Monty, Queen of Pinks, Blue Ribbon.....				
Oct. 17	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Oct. 24	Bon. Deluxe				
Sept. 26	Sunburst	Aug. 1	Aug. 8	No	Aug. 1
Oct. 10	Pacesetter, Little America, Yel. Pacesetter				
Oct. 14	Indianapolis Varieties				
Oct. 24	Granite State, Luna, Wilson's White and Yellow	Aug. 8	Aug. 15	Aug. 8-Aug. 21	Aug. 22
Oct. 31	Delaware, Oregon, Yel. Delaware.....				
Oct. 10	Georgia, Gardenia, Blazing Gold.....	Aug. 8	Aug. 15	Aug. 8-Aug. 14	Aug. 15
Oct. 17	Monty, Queen of Pinks, Blue Ribbon.....				
Oct. 24	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Oct. 31	Bon. Deluxe				
Oct. 3	Sunburst	Aug. 8	Aug. 15	No	Aug. 8
Oct. 17	Pacesetter, Little America, Yel. Pacesetter				
Oct. 21	Indianapolis Varieties				
Oct. 31	Granite State, Luna, Wilson's White and Yellow	Aug. 8	Aug. 22	Aug. 8-Aug. 28	Aug. 29
Nov. 7	Delaware, Oregon, Yel. Delaware.....				
Nov. 7	Granite State, Luna, Wilson's White and Yellow	Aug. 15	Aug. 29	Aug. 15-Sept. 4	Sept. 5
Nov. 14	Delaware, Oregon, Yel. Delaware.....				
Oct. 17	Georgia, Blazing Gold	Aug. 15	Aug. 22	Aug. 15-Aug. 21	Aug. 22
Oct. 24	Monty, Queen of Pinks, Blue Ribbon.....				
Oct. 31	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Nov. 7	Bon. Deluxe				
Oct. 10	Sunburst	Aug. 15	Aug. 22	No	Aug. 15
Oct. 24	Pacesetter, Little America, Yel. Pacesetter				
Oct. 28	Indianapolis Varieties				
Oct. 17	Sunburst	Aug. 15	Sept. 5	Aug. 15-Aug. 21	Aug. 22
Oct. 31	Pacesetter, Little America, Yel. Pacesetter				
Nov. 4	Indianapolis Varieties				
Nov. 14	Granite State, Luna, Wilson's White and Yellow	Aug. 22	Sept. 5	Aug. 22-Sept. 11	Sept. 12
Nov. 21	Delaware, Oregon, Yel. Delaware.....				
Oct. 24	Georgia, Blazing Gold	Aug. 22	Aug. 29	Aug. 22-Aug. 28	Aug. 29
Oct. 31	Monty, Queen of Pinks,, Blue Ribbon.....				
Nov. 7	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Nov. 14	Bon. Deluxe				
Oct. 24	Sunburst	Aug. 22	Sept. 12	Aug. 22-Aug. 28	Aug. 29
Nov. 7	Pacesetter, Little America, Yel. Pacesetter				
Nov. 11	Indianapolis Varieties				

1. See page 55 for lighting periods in other areas.

SINGLE PINCH POT PLANT SCHEDULES

Flower	Varieties	Pot	Pinch	Lighting Period 40-45° Latitude (1)	Shade
Nov. 21	Granite State, Luna, Wilson's White and Yellow	Aug. 29	Sept. 12	Aug. 29-Sept. 18	Sept. 19
Nov. 28	Delaware, Oregon, Yel. Delaware.....				
Oct. 31	Georgia, Blazing Gold	Aug. 29	Sept. 5	Aug. 29-Sept. 4	Sept. 5
Nov. 7	Monty, Queen of Pinks,, Blue Ribbon.....				
Nov. 14	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Nov. 21	Bon. Deluxe				
Oct. 31	Sunburst	Aug. 29	Sept. 19	Aug. 29-Sept. 4	Sept. 5
Nov. 14	Pacesetter, Little America, Yel. Pacesetter				
Nov. 18	Indianapolis Varieties				
Nov. 28	Granite State, Luna, Wilson's White and Yellow	Sept. 5	Sept. 19	Sept.5-Sept. 25	No
Dec. 5	Delaware, Oregon, Yel. Delaware.....				
Nov. 7	Blazing Gold, Georgia	Sept. 5	Sept. 12	Sept.5-Sept. 11	Sept. 12
Nov. 14	Monty, Queen of Pinks,, Blue Ribbon.....				
Nov. 21	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Nov. 28	Bon. Deluxe				
Nov. 7	Sunburst	Sept. 5	Sept. 26	Sept. 5-Sept. 11	Sept. 12
Nov. 21	Pacesetter, Little America, Yel. Pacesetter				
Nov. 25	Indianapolis Varieties				
Dec. 5	Granite State, Luna, Wilson's White and Yellow	Sept. 12	Sept. 26	Sept. 12-Oct. 2	No
Dec. 12	Delaware, Oregon, Yel. Delaware.....				
Nov. 14	Georgia	Sept. 12	Sept. 19	Sept. 12-Sept. 18	Sept. 19
Nov. 21	Monty, Queen of Pinks,, Blue Ribbon.....				
Nov. 28	Criterion, Portrait Varieties, Humdinger, Calypso Varieties, Personality				
Dec. 5	Bon. Deluxe				
Nov. 14	Sunburst	Sept. 12	Oct. 3	Sept. 12-Sept. 18	Sept. 19
Nov. 28	Pacesetter, Little America, Yel. Pacesetter				
Dec. 2	Indianapolis Varieties				
Dec. 12	Granite State, Luna, Wilson's White and Yellow	Sept. 19	Oct. 3	Sept. 19-Oct. 9	No
Dec. 19	Delaware, Oregon, Yel. Delaware.....				
Nov. 21	Georgia	Sept. 19	Sept. 26	Sept. 19-Sept. 25	No
Nov. 28	Monty, Queen of Pinks,, Blue Ribbon.....				
Dec. 5	Criterion, Portrait Varieties, Humdinger..				
Dec. 12	Bon. Deluxe				
Nov. 21	Sunburst	Sept. 19	Oct. 10	Sept. 19-Sept. 25	No
Dec. 5	Pacesetter, Little America, Yel. Pacesetter				
Dec. 9	Indianapolis Varieties				
Dec. 19	Granite State, Luna, Wilson's White and Yellow	Sept. 26	Oct. 10	Sept. 26-Oct. 16	No
Dec. 26	Delaware, Oregon, Yel. Delaware.....				
Dec. 5	Monty, Queen of Pinks,, Blue Ribbon.....	Sept. 26	Oct. 3	Sept. 26-Oct. 2	No
Dec. 12	Criterion, Portrait Varieties, Humdinger..				
Dec. 19	Bon. Deluxe				
Nov. 28	Sunburst	Sept. 26	Oct. 17	Sept. 26-Oct. 2	No
Dec. 5	Lace Varieties				
Dec. 12	Pacesetter, Little America, Yel. Pacesetter				
Dec. 16	Indianapolis Varieties				

1. See page 55 for lighting periods in other areas.

TWO-PINCH POT PLANTS FOR

Normal Season Flowering

NO LIGHTS—NO SHADE

Variety	Color	Pot cuttings (4 per 6" pot)	First Pinch	Final Pinch	Flowering Date
Fairyland	Pink	July 28	Aug. 4	Aug. 24	Oct. 15
Blazing Gold	Yellow	July 28	Aug. 4	Aug. 24	Oct. 23
Granite State	White	July 28	Aug. 4	Aug. 24	Oct. 25
Glitters (and Bronze)	Bronze	Aug. 4	Aug. 11	Sept. 6	Oct. 28
Queen's Lace	White	Aug. 4	Aug. 11	Sept. 6	Nov. 1
Gold Lace	Yellow	Aug. 4	Aug. 11	Sept. 6	Nov. 1
Royal Bronze	Bronze	Aug. 4	Aug. 11	Sept. 6	Nov. 1
Wilson's White	White	July 28	Aug. 4	Aug. 26	Nov. 1
Indianapolis White, Dark Yellow and Pink	—	Aug. 4	Aug. 11	Sept. 6	Nov. 5
Delaware	Bronze	Aug. 4	Aug. 11	Sept. 1	Nov. 8
Criterion	Pink	Aug. 4	Aug. 11	Sept. 1	Nov. 8
Humdinger	Dark Orchid	Aug. 4	Aug. 11	Sept. 1	Nov. 10
Copperhead	Bronze	Aug. 11	Aug. 18	Sept. 10	Nov. 10
Queen of Pinks	Pink	Aug. 4	Aug. 11	Sept. 1	Nov. 10
Cadet	Red	Aug. 4	Aug. 11	Sept. 6	Nov. 14
Bonnaillon De Luxe	Yellow	Aug. 4	Aug. 11	Sept. 5	Nov. 20
Helen Frick	Pink	Aug. 11	Aug. 18	Sept. 15	Nov. 20
White Frick	White	Aug. 11	Aug. 18	Sept. 15	Nov. 20
Red Rolinda	Red	Aug. 4	Aug. 11	Sept. 8	Nov. 23
White Lady	White	Aug. 11	Aug. 18	Sept. 15	Nov. 25
Beautiful Lady	Pink	Aug. 11	Aug. 18	Sept. 15	Nov. 25
Sungold	Yellow	Aug. 4	Aug. 11	Sept. 8	Nov. 25

Note: If extra heavy plants are desired, pot cuttings two weeks earlier than the above dates. Make first pinch one week earlier than indicated, final pinch as shown above.

SINGLE PINCH

The trend is definitely toward single pinch growing on normal pot Mums—a faster crop, shorter plants, easier.

To grow the above varieties single pinch for normal date, pot cuttings 7 to 10 days in advance of final pinch date given above, and pinch on final pinch date shown.

Exceptions: The following varieties should be potted **14 days** before final pinch date: Fairyland, Glitters, Lace varieties, Royal Bronze, Indianapolis varieties, Lady varieties, Copperhead, and Frick. These varieties tend to grow tall. The pinch date has been delayed, hence the potting date is farther in advance of the pinch date. Example, Indianapolis: pot August 23, pinch September 6, flower November 5.



3 1/2-inch garden mums produced for the cash and carry trade at Texas A. & M. College under "Doc" DeWerth. These colorful little fellows can be flowered in early May, no shade, no lights, by simply potting cuttings March 2, holding 60° till buds show. Details page 1. Note attractively wrapped plant on right 49¢ cash and carry! Photo: Texas A. & M. College.

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Our 1ST PLANT CATALOG

We've been wanting one for over 20 years—as long as we've been in the Plant business. Back in the '30's our operation consisted of first, getting an order from a customer, and then hunting up a supplier without too much regard for other considerations. From this modest beginning we've developed, over a period of years, a well integrated operation. Our roster of suppliers consists of specialist producers with most of whom we've been doing business over a period of years. With the increase in transportation costs, we've located several suppliers for our more important items in different parts of the country. This of course, means less transportation cost to you.

All the people and facilities of the Ball organization are "at your service" when your need concerns plant materials. Our Ball salesmen are experts in the field. Our own greenhouse and customer service staff are well acquainted with the varieties we handle and they are always happy to help you with your problems.

This catalog obviously doesn't list ALL the varieties our Plant Dept. handles. We've only included the more important ones. If you can't find the plant you need in this list, Arvilla Kerst, our Plant Dept. Manager will be glad to hear from you. She's been active in the plant business for more years than she likes to admit! Her knowledge and experience are yours for the asking.

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PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Mrs. Arvilla Kerst assumed managership of our Plant Dept. July 1, 1955. She has been working in the department since 1944. Many of you have talked with her about your problems over the phone or via letters. You know that she's always willing and anxious to work with you. Her big enthusiasm lately concerns our comparatively new line of Garden Roses. And what does she have in her own garden? One old, decrepit Floradora! Just like a florist, isn't it?



Successful Carnation Culture

The generally very good demand for Carnations across the U. S. the past several years has more than ever confirmed their place as one of our leading cut flowers. The many hundreds of Carnation specialists in the East, the Midwest, Denver, and on the west coast continue to find the crop profitable, by and large are holding or modestly increasing their production. The flower buying public continues to call for them—because they are colorful, very fragrant, and long-lasting. Carnations lend themselves to wholesale growing too, because they are excellent shippers.

Carnations are also a "must" crop for the retail growers. The majority of the many thousands of these operators include from a bench or two to a house or more of them in their program. They are a natural for this purpose too. Reasons:

1. Cool temperature requirement fits in with many other crops.
2. Production is steady clear through the fall, winter, spring season—flowers always available.
3. Culture is not difficult, especially when the good specialist-produced cuttings are bought—and kept under glass. This eliminates both the propagating task and the hard labor and disease problems that go with field culture.

SOILS AND STERILIZING

Carnations, like Mums, will do well in a variety of different soil types—as long as the soil is properly managed. Most important point here is to insure good aeration. This in turn means adequate organic material or humus in one form or another. The majority of commercial Carnation growers today depend primarily on peat moss to provide this much needed humus. Since the Carnation crop stays in the bench a full year (sometimes 2), a fairly liberal dose of peat before benching will usually be necessary. Amount required depends greatly on condition of soil, amount of humus added previously, etc. In general, 2 to 3 bales of peat per 500 sq. feet of bench would not be unusual.

Many growers still use manure. Well rotted manure in some respects seems to provide an added growth stimulant as compared to peat. The trouble is that manure is expensive, scarce, and unless it is quite well rotted down, is apt to cause trouble. In rotting down, the grower usually ends up with about half the volume he started with. Some growers compromise here by a mixture of peat and manure.

A word about sterilizing. Steaming benches prior to planting Carnations is almost standard practice. Furthermore, all soil used for potting or banding or nursery bed culture is also carefully sterilized. Also, any supporting stakes, labels, or anything else that will come in contact with the soil or the plants. Thoroughness is vitally important, especially in the case of Carnations which are subject to several serious disease problems.

We have a booklet covering all the details on preparation of beds, etc. to do this steaming work—available at no charge on request.

With the few exceptions noted above, all the comments on soil preparation, sterilizing, etc. under Mums (page 49) apply equally to Carnations. Only other difference: certain of the chemical soil fumigants are definitely not recommended for use where Carnations are to be planted. Main offender: Methy Bromide.



Pink Sims cuttings at West Chicago direct planted May 2, pinch and a half, bed in heavy cut by September 15. Direct benching of cuttings is the least labor, and on the face of it, the most efficient. It has its disadvantages, though—see page 98.

HANDLING OF YOUNG STOCK

There are three different approaches to this problem— all three of them rather widely practiced by growers. Here they are:

Indoor Culture

Probably the most widely practiced method—and in our opinion definitely the most practical solution for the retail grower.

General plan is to order cuttings for delivery between April 1 and about May 1. On arrival, the cuttings are either planted to 2½ inch veneer bands, to a 2¼ or preferably 3 inch pot—or better yet, Jiffy-Pots. In our experience they seem to grow definitely better in the Jiffy. Some growers plant the cuttings to so-called nursery beds— usually 3 x 3 inches. Growth in the nursery beds is good, but there is more disturbance of roots when plants are dug and moved to final bench. A little more chance for disease problems where roots are torn up this way. Clay pots offer several problems—first they must be sterilized; and second, plants tend to dry out rapidly especially in the warmer days of May in clay pots. The veneer bands are quite inexpensive, but in contrast to Jiffy-Pots, there is the added labor of removal of bands at benching time. The Jiffy-Pot can be planted pot and all, which saves time at a busy season.

One critically important point at this stage is that all soil must be thoroughly sterilized before being used. Of course, such things as new veneer bands, Jiffy-Pots, and new flower pots are generally free of disease, but certainly old pots and old flats must be sterilized.

It is also extremely important in planting a nursery bed or potting operation of Carnations in the spring to figure

SUCCESSFUL CARNATION CULTURE

on not over 4 to 5 weeks from potting or banding of cuttings to benching date. Cuttings which are left longer than this will very soon become checked and hardened. At best they will stop growing and worst of all they receive a check which often takes some time for them to overcome after final benching. If the final bench can be cleared immediately after Mother's Day and allowing a week for adding peat, sterilizing, etc., Carnation cuttings should be potted or banded not earlier than April 5 to 10.

The other very important point in handling Carnation plants, especially in the smaller containers, is that regular watering and fertilizing—and spraying—must be followed. Plants tend to dry out rapidly, especially in clay pots. As a result of heavy watering, nutrients are leached out rapidly and must be replaced by frequent feeding. Routine spraying with a fungicide and insecticide is important at this stage of the game. Many troubles such as rust can be easily eliminated here, whereas once established in the final bench with heavier growth they are exceedingly difficult to control.

Incidentally, much better growth will be achieved at this stage if the soil is loosened up by the addition of about 1/4 of peat moss before use.

Here are the principal advantages of indoor culture as they have worked out for us.

1. In general, this indoor culture is a little more fool-proof and reliable than either direct benching or field culture. Important, especially for the grower who has many other crops to see to and much else to do in the spring.
2. Not necessary to tear out the old crop until mid-May or even early June if desired. Mother's Day and the month of May and even early June can be periods of good demand for flowers both for retail and market growers.
3. Indoor culture is much less work than field culture.
4. Much less chance to pick up disease indoors than in the field.
5. The work involved can be done before and after the month of May, which is usually the busiest month of the year.

One objection to indoor culture is, of course, that it ties up the greenhouse space at a crowded season. Actually, young Carnations would be better off in a cold frame as

long as they are protected from freezing and if they are watered, fed, and sprayed as carefully as they would be in the greenhouse. They like the cool temperature and will make better plants outdoors than in the greenhouse.

Direct Benching

First proposed in the early 50's, already adopted by a substantial number of growers, it has several very strong advantages—and some shortcomings.

The plan briefly is to plant Carnation cuttings directly to the flowering bench at final spacing just as is done with Mums. Usually the cuttings are planted from around March 1 up till June 1 and some on through the summer. A very few are planted at other months of the year, too.

The saving in labor is very substantial, and one of the major advantages of direct benching. There are no potted or banded plants to care for, and once the plants are benched, they stay there. Another big advantage is that under favorable conditions and if properly done, definitely heavier, more rapid growth and better production can be achieved with direct benching. It stands to reason that a plant which has not been checked and delayed by the extra handling is going to produce that much more growth—and sooner. Also, if properly carried out, there is less chance for disease with direct benching. The grower eliminates the possibility of infection from flats, pots, etc. used in carrying the plants along. An additional advantage is the possibility of cropping certain colors that are wanted at certain seasons—for example, red for Christmas. As a matter of fact it is possible to even control production of flowers—heavier during periods when flowers are wanted, etc. However, since most crops will produce two production peaks, it usually becomes difficult to take advantage of both of them.

Now for the disadvantages. Probably the toughest one, taking the average experience of a large number of growers, is the difficulty of getting cuttings established and into growth rapidly, especially during hot weather. For some reason, a Carnation cutting direct planted in hot weather sometimes more or less just stands there for many weeks before it gets growing. Sometimes many of the plants are even lost. We have seen this happen in some cases to very good growers. It is almost always associated with summer heat; but direct benching cuttings back in March and April



Carnations in Jiffy-Pots—a method that has found increased favor among Carnation specialists. Left photo cuttings just potted, center photo ready to pinch (at pencil point), right photo plant after 6-8 weeks, ready to bench. Cuttings grow rapidly and break well, no disease problem and of course pot and all can be benched, saving labor. The important point: set cuttings just as high as possible in the pot, and when benching pot and all, set the soil ball half an inch or so above the bench level. Helps prevent rot.

means throwing out a flowering bench before the crop is through.

The second disadvantage is tendency of direct planted crops to produce heavy production peaks (2 of them the first year)—and not always at the time they are wanted. For a more complete discussion of this problem, see GROWER TALKS, March 1955. Even with the so-called pinch and a half there is a greater tendency for the crop to flower unevenly than is the case with banded or potted plants or field plants.

In addition to this, the bench is tied up an extra 5 to 6 weeks longer at a time when space is at a premium. Conversely, the old crop must be thrown out in midspring just when flowers are wanted.

Certainly, where direct planting is planned, it is vitally important that the several suggestions on direct planting as outlined on page 51 of the Mum cultural section be followed carefully. Steam sterilizing is almost a must, and certainly, a good succulent, well-rooted cutting is a definite requirement where direct planting is to work. No doubt it is a little less forgiving and foolproof than nursery bed or potting—but potentially more rewarding if done successfully. Because of this somewhat less reliability, it is doubtful whether planting would be as practical for the smaller retail growers as the procedure of Jiffy Potting described above.

Direct planting is used most heavily by Carnation specialists, and most of them use it in combination with various schemes of nursery bedding or of Jiffy-Potting to fill in the production gaps and to enable them to leave part of their old crop to flower through May and June. Also, direct planting seems to be used more in the cooler section of the country. Where used in the South, the cuttings are usually planted as early as February or March.

Probably the most commonly used and practical of the direct benching schedules is something like the following:

June 11—Direct bench cuttings (Sims varieties)

July 2 —Start the first pinch (high pinch, each plant as side shoots show)

Aug. 8 —Start second pinch, the most advanced shoot on each plant until two are pinched on each plant.

Oct. 15—Start steady substantial cut of Sims varieties (around 1 flower per sq. ft. per week). Reasonably steady production is continued thru the winter and spring.

Note: Above schedule is a typical "pinch and a half" crop. In other words, each crop is pinched once 3 or 4 weeks after planting, then about half the shoots are given a second pinch—to more evenly distribute the crop of flowers.

Direct benching after Mother's Day will, of course, bring the crop into flower proportionally earlier.

Where the loss of production in May and early June is the problem, there is a schedule worked out by Dr. John Seeley at Penn. State which, with Sims varieties, will help. It follows:

June 15—Direct plant cuttings 7 x 7.

July 15—Most cuttings should have side shoots cleared and be ready for a soft pinch. No second pinch on any plant.

Nov. 1 to January 15 first crop—4 flowers per sq. foot for December alone reported by one grower.

April 5 to June 15 second peak for crop from the above plants—just about right to fill in the May-June gap resulting from other benches being torn out.



The new Virginia pink variety, Edward Winkler, as grown by the originator. Very large flowered variety. Mr. Winkler reports that the above crop was direct planted July 1, misted, single pinch August 1, above picture December 1.

Here's a tantalizing possibility—direct planting of Carnation cuttings during hot weather in houses equipped with pad type cooling. Very little has been done on this so far, but one grower reported that Sims varieties direct benching late July in a cool greenhouse were in full flower for Thanksgiving. Combination of high light intensity in summer and cool temperature from the cooling system in this case produced remarkably rapid growth. Indeed, cooling may change a lot of the practices in benching Carnations as it becomes better known.

Field Culture

Cuttings are banded (March-April), carried indoors till hard frost danger is past, then planted out to the field. In mid-July they are dug, brought in, and benching. The cooler temperatures outdoors produce heavier bushier plants, so much so that considerably fewer of them are needed to fill a bench than of the indoor grown plants. Field grown plants tend to be light in production during late fall and early winter, but are in very heavy cut from late winter on. Main disadvantages are first the danger of picking up diseases outdoors, and second the large amount of hand labor involved. Because of the increasingly serious disease problem and the help shortage, more and more growers are keeping plants under glass till benching time; although many thousands are still handled outdoors. Highlights of field culture:

Soon as cuttings are rooted, they should be planted into 2½-inch bands set in wooden flats. The flats may be moved about easily—and may be put on shelves if necessary. Also, the flats may be prepared, filled with bands and soil in advance. Soil for banding or potting should be lightened with peat or well rotted cattle manure, and should be steamed a month of two before used. (Be sure flats are steamed, too). We also add phosphate, roughly equivalent to 5 pounds per 100 sq. feet of bench area. Care should be taken to set cuttings just as shallow in the bands as possible—even if a root is exposed here and there. Deep planting is inviting rot—and also a slow start. Carnations in bands should be kept at regular Carnation temperature—50° nights, 58° cloudy days, 62-65° sunny days. Feed lightly after they are growing; we prefer a balanced liquid feed. Even though they may wilt a little, they will be better with no shade at all after transplanting.

SUCCESSFUL CARNATION CULTURE

Years ago, it was the practice to set cuttings 3 x 3 inches in open flats of soil or in open benches—no bands. Most growers use bands now mainly because this avoids breaking up the roots as plants are moved to the field, and when they are banded. Breaking up roots invites disease, shocks the plant, at best.

Where soils are apt to be heavy, it is advisable to spread a 1/2 to 1-inch layer of sand or some coarse material over the flat bottom before putting in the bands and soil—to insure against waterlogging of soil in the bands. This can be serious, especially in winter!

Some 4 to 5 weeks after banding, the plant should be ready for its first pinch. It should have made several inches of good new growth, and side shoots should be evident about the base of the plant before pinching. We pinch soft (high). A lower pinch seems to shock the plant and make it come back slowly. The cutting should be so brittle when pinched that the tip may be simply broken out. Buds shouldn't show in the plant tip at this time—if so the plant has been hardened or checked somewhere.

One more point on the "in bands" period: the plant must never be left in the band so long as to be checked. Cuttings made back in December and held in bands till mid-May are bound to be hardened. Actually, only the later winter propagation can be held over for field planting, and some of that should really go to 3 x 3 bands. A Carnation, like any other plant, if hardened, will never produce the crop of which it is really capable. We never try to hold a Mum in a 2 1/2 inch band over 4 to 6 weeks, and a Carnation shouldn't be there much longer.

Soon as danger of frost is past, the plants, band and all, are set out to the field. The land used should not have been used for Carnations for at least several years, preferably more. They are set in rows 20 inches apart (wide enough for rototiller cultivation), and 6 inches apart in the row. They may be set in "beds" outdoors, spaced 8 x 8 inches, with 4 foot beds and 2 foot walks. Ohio State recommends sideboards and steaming the soil in these beds to help control diseases.

In planting outdoors again be most careful to set plants as shallow as possible, and also to avoid breakage of branches or roots.

Plants should be sprayed every two weeks with the Fer-mate-Parathion spray described on page 57. After they are in active growth, give them a top dressing of 4-12-4 applied in ribbons on either side of the rows. Cultivation is helpful, but care should be taken to avoid breaking plants up. Water? Yes, if it's dry and they need it—overhead sprinklers are usually used. If you do water, soak thoroughly.

Pinching should be a continuous process from the time of the first pinch till late July. Plants are gone over every week, pinching one or two shoots from each plant that is ready for it. They will break out better if this is done early in the morning. By the way, these broken out "tips" if rooted, make poor, weak-growing plants. Pinching should stop not later than late July or the crop will be delayed. Free breaking, fast producers can be pinched a bit later. A plant should have at least half a dozen breaks on it at benching time (field plants).

Starting in early July, and winding up by July 15, the plants are moved to their final benches in the greenhouse. Again, use care in digging and moving plants to avoid breakage. In our experience, the veneer bands are pretty well rotted by this time; they seem to hold together enough so that the original ball of soil still holds together as plants

are dug. Remains of the bands should be discarded at this time.

INSECTS AND DISEASES

As with most important crops, there are some troublesome ones here.

Recommended control measures for most of the important Carnation insects and disease problems will be found between the chart "Know Carnation Diseases" on page 101, and the table on recommended control for insects and diseases on page 58.

Much of this battle with Carnations diseases—and insects too—can be won by a well planned and carefully followed preventative program. This is particularly true of the perennial problem of Carnation plants rotting off a month or two after benching. Actually there isn't too much that can be done to stop this very serious problem once it appears. However, there are several important preventative measures that should be taken:

1. Very carefully sterilize all soils, flats, old flower pots, etc. used in connection with the crop. Be sure to include the supporting stakes, labels, etc. Also tools.
2. Use as nearly as possible disease-free cuttings. In general, cuttings from specialist propagators will be free of disease—not 100% so always, but enough so that the average grower who uses them and carefully sterilizes soil, etc. will have little or no trouble from loss of plants after benching.
3. Careful watering practices, especially the first months after benching. Overwatering, and also failure to get ventilation in the houses in the morning will create high humidity which definitely favors most of these diseases.
4. Terraclor treatment of soil just prior to benching plants. This is a new development that shows promise but hasn't been tried on a large number of commercial ranges as yet. It's simple and inexpensive and looks like one of those things that couldn't help but do some good. Procedure is simply to work in 1 to 1 1/2 pounds of dry Terraclor (75% wettable powder) per 1000 sq. feet of bench area after sterilization and before benching the plants. The dry material is raked about 2 inches deep into the soil and that is all there is to it. More details in *Grower Talks*, June, 1956, page 27.

In the field of insect control, there is again a strong case for a preventative program. Actually the type of spray program described on page 57 under *Chrysanthemum Culture* has equal application here.

ON GOOD GROWING PRACTICES

Here are some of the most important.

Feeding and Watering

How often to water? It certainly can't be done on a schedule. They will go 5 times as long between watering in the winter as they do in the summer. It pays to take a trowel and dig a handful of the lower soil before watering. Many growers wad a handful of the lower soil into a little ball as a test. If the ball crumbles, again the bench is ready for water. In general soak thoroughly when you do water.

Mostly though, watering is a case of common sense and experience. Obviously a bench of Carnations should never be allowed to become wilting dry. Probably the other most general problem is one of overwatering in winter. As a general rule it is a good thing to allow the soil to become

Continued on page 102

KNOW CARNATION DISEASES

They Cost You Money



BACTERIAL LEAF SPOT

Edge of spots water-soaked and yellow, when held against light. Bacteria may ooze from surface as droplets. Disease progresses from lower leaves upward. Infection also on stems and flowers. Favored by moist conditions.

SEPTORIA LEAF SPOT

Most common on lower leaves and stems. Note small black specks of fungus in center of spots. Spreads easily by spores. Favored by moist conditions.

MOSAIC STREAK

MOSAIC—Mottling most evident in young leaves. Flowers may show light streaks paralleling veins. Virus spreads easily by handling and by aphids. Wash hands before handling healthy plants.

STREAK—Virus disease spread only by insects and cuttings. No effect on flower. Red spots more pronounced on colored varieties. Should be rogued. Control insects.

ALTERNARIA LEAF SPOT

Lower leaves most commonly affected. Stem may be girdled by fungus. Spreads by spores. Favored by moist conditions.

RUST

Entire plants may be injured by severe infection. Stems may be affected. Spreads by spores. Favored by moist conditions.

HEALTHY BLOSSOM



BACTERIAL WILT

Wilt rapid. Root head water-soaked, the roots sloughing off. Rot moist. Sticky beneath bark. Yellow to tan streaking within stem. Easily spread by tools. Favored by warm temperatures and improper sanitation measures.

FUSARIUM ROOT ROT

Wilt slow. Root head not water-soaked. Roots sloughing off. Rot dry. No stickiness beneath bark. Red-brown color in rot only. Favored by improper sanitation measures.

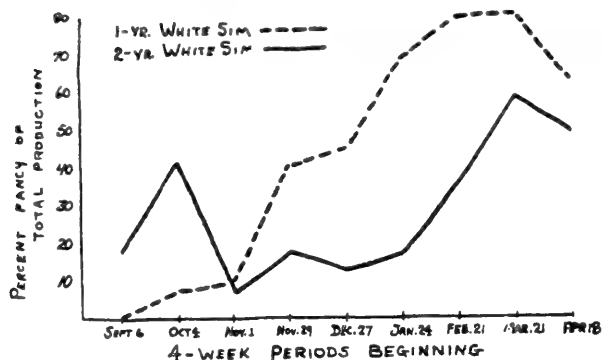
VIRUS YELLOWS

Results from combined mosaic and streak infection. Infected plants should be rogued.

FUSARIUM WILT

Wilt slow, generally on one side. Roots intact. Rot dry. Root head not water-soaked. Brown streaking within stems. No stickiness evident. Stems often cracking. Favored by improper sanitation measures.

SUCCESSFUL CARNATION CULTURE



Percentage of fancy grade Carnations from one and two year White Sim plants. Clearly the first year plants produced more top quality blooms. The difference is most apparent between December and April. From Colorado Flower Growers Bulletin #65, W. D. Holley.

dry enough so that it will make a ball that will crumble—as described above. Be sure to check the center of the bench, not the edges. Most growers will touch the edges of their Carnation benches several times in winter between regular heavy waterings.

About feeding: There seems to be some widely differing opinions on whether Carnations should be fed to maintain a level of 40 or 50 parts of nitrogen through the winter in the North. Many excellent growers do little or no feeding all winter—just barely enough to keep nitrogen showing on a soil test and to keep the plants from actually yellowing from lack of nitrogen and potash.

It would seem a fair general statement that 30-40 parts of nitrogen and potash should be maintained through the spring, summer, and fall, and that at least enough nitrogen and potash be applied in the winter to keep a low test showing, and to keep the plants in good color. Certainly this will mean several times as much feeding in the summer as in the winter. Incidentally, many growers prefer to do their Carnation feeding with liquid fertilizer injected into their watering system. Works very well. Saves a lot of work. See page 51.

Carnations are known to need calcium especially. Normally 150 ppm should be maintained. Add gypsum if calcium is needed. Phosphorous is usually supplied by annual addition of 3 lbs. per 100 sq. ft. (40%).

Temperature

The standard Carnation house temperature has always been 48-50° nights, 56-58° cloudy days, and 62-65° sunny days. Some very good growers don't go higher than 52 or 55° on cloudy days and 60° on clear days. That makes sense, particularly during long spells of cloudy weather. Somewhat lower temperatures in periods of dark weather will offset some of the soft stem tendency.

Many growers who use only the Sims varieties will go down to 46° nights clear thru the winter—to ease the problem of weak stems. Of course, the lower the night temperature, the less production you get. The Littlefield varieties are generally grown at least 50° nights, and many growers carry them 52 or 54° at night—again to improve production. Somehow they seem to stand the higher temperatures better than most varieties.

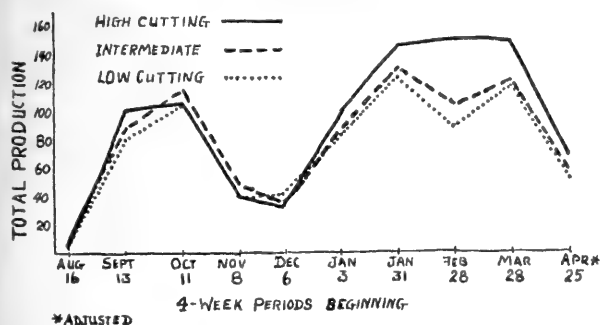
TO PREVENT ROTTING OF CARNATIONS AFTER BENCHING

Loss of young Carnation plants after benching is more or less of a problem wherever Carnations are grown. Often it is difficult under commercial conditions to identify the specific disease involved (there are many)—and apply the specific control measures. However, there are certain general control measures which, if followed closely, will in most cases greatly minimize or completely eliminate this perplexing loss. Here they are:

1. Thoroughly steam all soil, flats, labels, supporting stakes—anything that will come in contact with the soil or the plants. Soil can't be considered steamed unless it has been carefully checked (at the coolest points) with a thermometer. The rule: 180° for 30 minutes. Be sure to add all peat, manures, humus, etc. **before** steaming.
2. Make every effort to obtain disease free cuttings. Much disease trouble comes into the bench with the cutting. The larger specialist propagators who furnish the cuttings we offer conduct a constant program of culturing mother blocks, etc. to insure the greatest possible freedom from disease.
3. Where loss of plants has been a problem, we recommend potting cuttings to Jiffy-Pots or veneer bands rather than direct benching—or even planting to nursery beds. For whatever reasons, there is much less loss of plants, especially in Jiffies or sterile pots. Perhaps part of this is due to rapid drainage. Diseases are less apt to spread among plants in Jiffies or pots.

4. Very important: in setting cuttings into Jiffies or bands, be sure they are planted shallow—just as high in the soil as possible, even if a root or two shows. It is equally important in final benching of the plant to set the Jiffy-Pot or soil ball half an inch or so higher than the surrounding soil.
5. Ventilating and watering practices must be watched closely to keep stem and foliage dry as possible at all times. Avoid splashing water up onto the plants in watering—and also keep water from running across the bench. Water early in the day—with vents open. Misting of cuttings after planting can make trouble—better plant them earlier—before mid-May—so this is not necessary.
6. Soils used should be in the medium levels of principal nutrients—and in the medium low level of soluble salts. Calcium should be held at 150 ppm. A very hard soil should be loosened up with some peat—a bale or more to a bed.
7. Fungicides can help too. A foliage spray every week or two during early stages with Captan or Parzate is beneficial. Terraclor applied to the soil dry after sterilizing and just before benching and raked in like a fertilizer is definite help against rhizoctonia and sclerotium.
8. Don't plant cuttings into bone dry soil—it should be medium moist.
9. Try to avoid hot weather problems by getting cuttings in and potted during the cooler months of early spring—by early May or before.

The distribution of return crops from three heights of cutting carnations



What happens if the fall crop of Carnations is cut down hard? Above chart by Prof. W. D. Holley, Colorado A. & M. College, puts the finger on the loss of production, especially during the all-important January-April period resulting from cutting the fall crop too low. The solid line above is the production curve from the plants which were cut high in the fall. See text below. From Colorado Flower Growers Bulletin #59.

Ventilation

Very important especially in the control of Carnation diseases.

The crux of the whole problem is to operate the heating and ventilating system in such a way as to prevent the humidity from becoming very high in the greenhouse. Saturated humidity means moisture on the foliage. That provides an ideal situation for disease spores to germinate and spread. To prevent this during murky, cloudy, damp days in winter when the temperature is in the 30's or low 40's, it is very helpful to keep a little heat in the houses and keep a crack of air on at the same time. This has an effect of drying the air in the house.

Another important point—in the afternoon during the winter on a day when some air has been carried, it is important to be sure to have heat in the house before the ventilators are shut tight.

Shade on the Glass?

As with Mums or any other crop, shade on the glass even during hot weather can only reduce the amount of growth and production that the plants can make. However, under cases of extreme heat and especially where young plants are just starting, it is almost necessary to do a little shading. Better keep it light. A good check is to use a light meter and be sure that at least 5000 foot candles of light will penetrate the roof on a sunny summer afternoon. Most growers will remove all shade later in the summer as the plants become well established. This means quite frequent watering, but does promote better growth.

Spacing

Seven by seven is probably the most generally used spacing by commercial growers—where plants are benched from nursery beds, Jiffy-Pots, or plant bands. The same spacing is generally used for direct planting. Where field culture is practiced and large heavy clumps are brought in mid-summer, many growers go to 7 x 8 or even a little further.

Supporting

It is of obvious importance that supporting be tended to promptly. Usually Carnations will need at least 3 sets of wire and cross string supports before the end of the season.

CUT THE FIRST CROP HIGH!

One of the important points in managing a crop of Carnations is to avoid cutting the first crop of flowers in the fall down hard. Obviously if the first crop is cut clear down to the base of the plant, there will be no place for breaks to come from to provide the all-important winter and spring production. This is the reason that most growers will turn

up on the fall market with stems as short as 12 to 15 inches.

Professor W. D. Holley and Jorge Caparas at Colorado A. & M. College ran some interesting trials on the results of cutting back Carnations at 3 different heights. Briefly the conclusion was that where the fall crop was cut high the production from January thru April was much higher than where the fall crop was cut low. Interestingly enough, the best **quality** on the winter-spring crop was obtained where the fall crop was cut down fairly low. This quality difference was most noticeable in the fall and tended to disappear toward winter and spring.

Note the accompanying graph showing the production resulting from high, medium, and low cutting of the fall crop of flower—on the trials at Colorado. Note particularly the substantially heavier production of flowers from early January till late April where the first flowers in the fall were cut high.

Incidentally, a high cut on the fall crop was defined here as cutting the flowers with a stem length from 14 to 18 inches. A medium cut meant cutting the flowers from 17 to 22 inches. Cutting a long stem in fall was defined as taking a flower with 22 to 26 inches of stem length.

GROWING CARNATIONS TWO YEARS

For years, some growers have practiced more or less of second year culture on their Carnations. It is still seen occasionally but could not be called a general practice at this time.

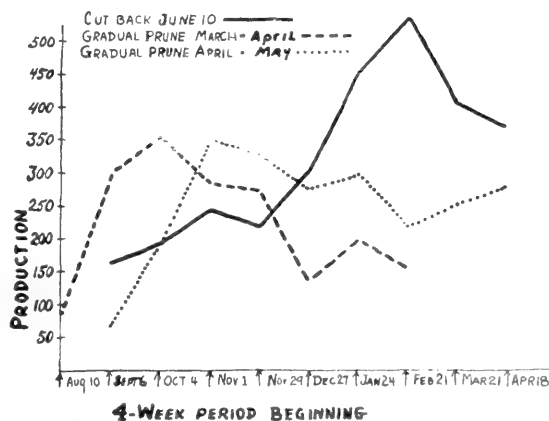
The big advantage, of course, is the saving in both labor of tearing out the crop, sterilizing and replanting, and also the cost of plants. This is substantial, and especially in a situation where help is scarce such as during World War II, the labor factor can become all-important.

In Europe where summers are cool, second year culture is practiced quite generally. Perhaps with the advent of cooling in our greenhouses in this country, we may be able to overcome the disadvantage of it and perhaps it will again become more general.

The principal disadvantages of second year culture are, first, a decrease in quality on the second year crop, and second, some additional problem in timing of the crop where certain practices of cutting back are followed.

Again based on studies at Colorado A. & M. by Prof. W. D. Holley, it is apparent that the most important thing is to avoid cutting plants back all at one time. This not only gives a plant a severe check, but will result in a heavy

Distribution of 2nd Year Production—Carnations



The question: should benches being prepared for second year production be pruned back early (March), or late (June). The gradual April-May pruning (thin dotted line) flowers less in the fall when flowers are not wanted and heavier in the winter when they are. The June 10 cut back (solid line) comes in very heavy December-February but very weak in late fall. Above graph also by Prof. W. D. Holley, Colorado Flower Growers Bulletin #65.

SUCCESSFUL CARNATION CULTURE

follow-up crop during a limited period of time the following winter. A plan of gradual thinning and cutting back of the plants will distribute the second year production much better, and will result in improved quality, too.

According to tests run at Colorado, if the pruning is done during April and May, the following second year crop will occur later—steady and heavy in the winter and spring and lighter in the fall—than if the pruning is done in March and April. The graph shown on page 103 illustrates this point very clearly.

The difference in quality between first and second year production on White Sim is also clearly shown on the graph on page 102.

Tests were also run at Colorado on the question of thinning of the crop following the first year of production. Conclusion is generally that it reduces total production and does not sufficiently improve quality to warrant this loss of cut.

EFFECT OF COOLING ON CARNATIONS

As this is written, we are just entering the first summer of Carnation production where a substantial part of the Carnation producing area has been equipped with cooling. Nearly all of this has been fan-pad or evaporative type of cooling. The experiences of the coming summer will much more clearly define the benefits to be derived on Carnations from this equipment.

However, based on even the limited number of installations that were operated last summer, it is almost beyond question that in areas where summer temperatures are high, cooling will more than pay for itself in terms of vastly better quality. Certainly any area where the greenhouses reach the high 90's and beyond the 100 mark frequently during the summer will benefit greatly by cooling. After all, the Carnation is a cool temperature crop, at it's best quality in temperatures which never exceed the low 70's. Even temperatures consistently in the 80's will seriously reduce the quality and flower size.

Many adjustments will have to be made in planting dates, etc. as the full impact of cooling is reached. In general, cuttings on direct benching can be planted much later to crop at the same time in the fall where cooling is installed.

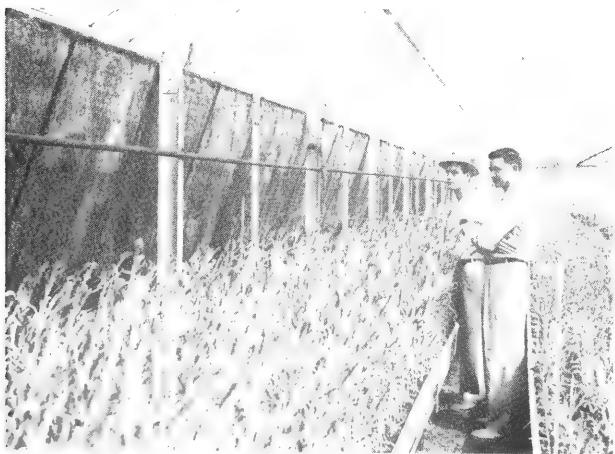
Growers interested in further details on the mechanics, installation, etc., of greenhouse cooling—drop us a line and we will be glad to send our illustrated booklet on the subject at no charge.

PROPAGATION VS. SPECIALISTS' CUTTINGS?

This is a question that all growers more or less constantly debate in their minds. Not many years ago the bulk of the Mum growers produced their own cuttings, and during the past 5 or 10 years it has become almost standard practice to use cuttings from specialist propagators. Reasons for this in the Mum industry are worth noting:

1. Freedom from disease—again not 100%, but in general the specialist propagator's stock is free of the difficult diseases that can make so much trouble with both Mums and Carnations.
2. Simplification of the growing operations. With more precise schedules becoming the practice in Carnation growing it is necessary to have the well rooted cuttings, the right varieties, and the right proportions of colors available on the right date to meet plant cropping schedules. It is extremely difficult for an individual grower to have enough stock area to produce the desired quantity and varieties of cuttings for the exact dates wanted. This problem has been a major reason for Mum growers switching over to specialist propagator's cuttings.
3. Economy. This is a hard point to realize when bills for cuttings must be paid, but it is even harder for most growers to realize the actual dollars and cents cost that goes into maintaining stock beds, insect disease control on them, the labor of making and rooting cuttings, etc. These tend to be hidden costs and therefore not generally appreciated. The realistic way to look at this question is—how much dollar revenue can be gained by putting the same area and the same amount of labor that is now in Carnations stock into some other revenue-producing crop?

There has been a definite trend the past several years toward more and more growers availing themselves of the high quality, reliable cuttings produced by Carnation propagators. We believe this trend will be accelerated in the several years ahead of us. To some extent this is only an extension of the long range trend in our industry toward specialization—each fellow doing the part of the job that he can do best. After all, if a man **specializes** in one small part of the job, devotes all his energies, abilities, and management talent to doing that part of the job well, it stands to reason that he is on the long haul going to do it better and at lower cost than the fellow who tries to do a little of a lot of things.



Pad-Fan cooling on Carnations in Colorado. Above photo, (left) at Cherry Creek Greenhouses, Inc. Bill Leonard of Cherry Creek, right, Darrell Messick, Geo. J. Ball representative, left. The Leonards report as much as 25 degrees of lowering of temperatures and great improvement in the crop. Most of the Denver crop is being cooled this summer ('56). Photo above (right) shows part of fans used on the Cherry Creek range. Note the plastic sheeting overhead installed to "baffle" or keep the cool air down near the plants.

Carnation Cuttings

GENERAL LIST

We offer rooted cuttings of the following varieties. Our propagators are the country's leading Carnation specialists. We offer our cuttings with every confidence that you'll find them as fine or finer than any other cuttings on the market.

An asterisk (*) in front of a variety name indicates a new variety.

Available Nov. 1 thru June

WHITE

	Per 100	Per 1000
Hoosier Spice (Res.). Pure white, good producer.....	\$15.00	\$135.00
Improved Olivette . Larger and cleaner Olivette	12.00	100.00
Imp. White Sim. A selection of White Sim.	15.00	125.00
Northland . Large fragrant white.....	12.00	100.00
Snowdrift . Snow white, large blooms....	15.00	125.00
White Boston (Res.). Sport of Boston, clean white	20.00	150.00
* White Life (Res.). Creamy white, very productive. Good keeper. Minimum order 250		180.00
White Littlefield . Pure white sport of Sidney Littlefield	15.00	125.00
White Sim. Pure white sport of Wm. Sim.	15.00	125.00

LIGHT PINK

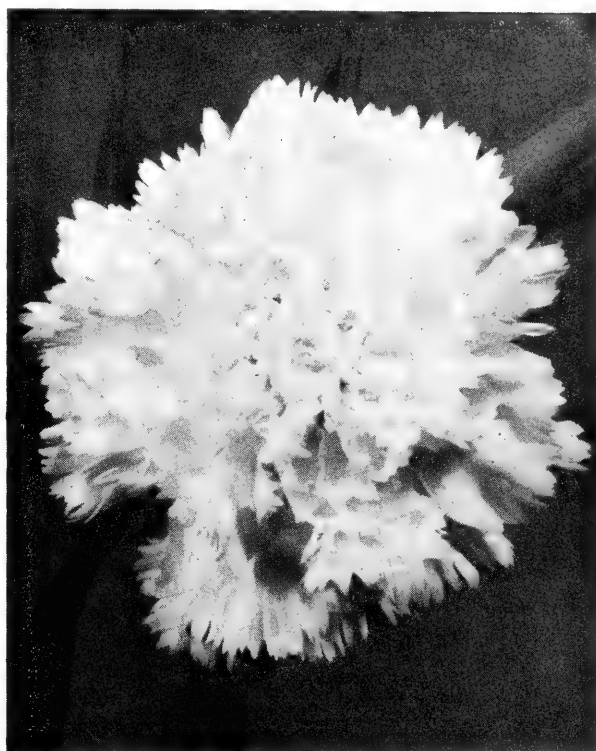
Crowley's Pink Sim. Light pink.....	15.00	125.00
Edward Winkler (PAF). True pink, resembles Virginia.	20.00	180.00
Gordon . Delicate shell pink.....	15.00	125.00
Hoosier Desire (Res.) Clear light pink, very large	15.00	135.00
Light Pink Littlefield . Similar to Hercules Virginia	15.00	125.00
Mr. Pink . Light pink. Good producer....	15.00	125.00
Nancy Thomson . Light pink. Sport of Sidney Littlefield	15.00	125.00
Pink Beauty . Sport of Pink Sim.....	15.00	125.00
Pink Sim. Light pink.....	15.00	125.00
* Portrait (Res.—NEW). Beautiful new pink. 250, \$50.00; 500, \$90.00....		160.00
Virginia Hercules . Large sport of Virginia.	15.00	125.00

SALMON PINK

* Braun's Sim (Res.). Deep salmon pink sport of Sim. 250-450, \$22.00 per 100; 500-950, \$20.00 per 100; \$180.00 per 1000.		
Calypso Sim. Deep shrimp pink. Sport of Wm. Sim.....	Per 100 \$18.00	Per 1000 \$150.00
Debbie . Salmon sport of Sim.....	20.00	150.00
Evans Salmon Sim. Salmon pink.....	15.00	125.00
Petersen's Salmon Sim. Salmon pink....	15.00	125.00
* Salmonaise . Salmon pink sport of Virginia.	20.00	180.00
Shocking Pink Sim. Brilliant dark salmon.	15.00	125.00

MEDIUM PINK

Citation . Rose pink.....	15.00	125.00
Virginia Rose . Uniform production. Good keeper.	12.00	100.00



APOLLO
See page 107.

DARK PINK

	Per 100	Per 1000
Boston . Dark pink. Very productive....	\$15.00	\$125.00
Charlene . Beautiful, large dark pink.....	15.00	125.00
Sidney Littlefield . Extra large, dark pink.	15.00	125.00
Virginia Miller . Dark pink Virginia.....	12.00	100.00

CRIMSON & RED

Cardinal Sim. Color similar to King Cardinal	15.00	125.00
Congo . New crimson.....	15.00	125.00
Dark Red Sim. Dark scarlet sport of Sim.	15.00	125.00
Ember Sim. Red sport of Wm. Sim.....	15.00	125.00
* Improved Wm. Sim. Larger and fuller bloom than Wm. Sim.....	15.00	125.00
Jumbo Cardinal . Improved Cardinal....	15.00	125.00
Majestic (Res.). Cross of Wm. Sim. Larger, brighter red.....	20.00	150.00
Mrs. C. W. Weld . Crimson. Clean healthy grower.	15.00	125.00
Red #16 . Same color as King Cardinal..	12.00	100.00
* Red Gayety . Clear red. Same growing habits as Gayety.....	20.00	150.00
Selected Red Sim. Strain of Wm. Sim....	18.00	150.00
Tom Knipe (Pat.). Large red. Full flower.	15.00	125.00
Topper . Rich velvety maroon.....	15.00	125.00
Wm. Sim (Pat.). Vivid red seedling.....	20.00	150.00
Wooster Scarlet . Red.....	12.00	100.00

Carnation Cuttings

GENERAL LIST, Continued

YELLOW

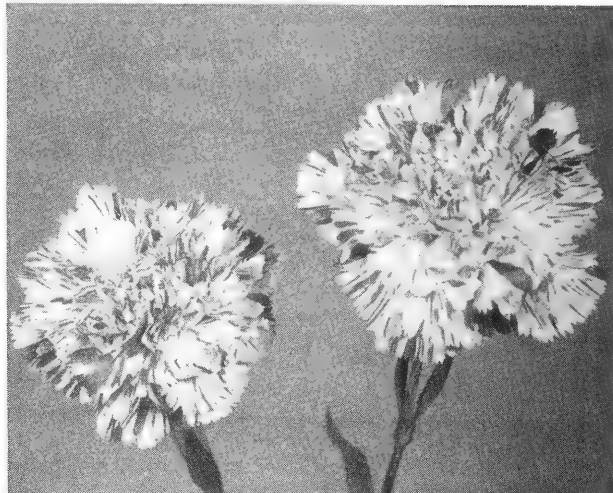
* Braun's Yellow Sim (Res.). Lemon yellow with Sim's vigorous growth. Minimum order 500. 500-950, 22c each; 1000 or more, 20c each.		
* Brigadoon (Res.). Clear lemon yellow. Parentage, Sim and Miller's Yellow.	Per 100	Per 1000
Minimum order 500.....		\$200.00
Harvest Moon . Buff yellow.....	\$15.00	125.00
Hoosier Gold (Res.). Yellow with faint pink stripes. Not a variegated.....	15.00	135.00
Imp. Miller's Yellow . Good yellow.....	15.00	125.00
Shirley Ann . Improved Miller's Yellow....	15.00	125.00
Yellow Sim . Golden yellow similar to Harvest Moon	18.00	150.00

ORCHID & PURPLE

* Hoosier Princess (Res.). Lavender pink that glows pink under artificial light. Flowers are large and full with few splits. Qualified for Dorner Memorial Medal	20.00	180.00
Orchid Beauty . Novelty.....	15.00	125.00
* Purple Littlefield . Deep purple.....	15.00	125.00
Royalty . Bright royal purple.....	18.00	150.00

VARIEGATED

Anniversary . Shade darker than Scarlet Sim	15.00	125.00
Barbara Brigham . Apricot with pink penciling	10.00	90.00
Cooper's Var. Sim . White with red markings	15.00	125.00
Frosted Weld . Similar to Scarlet King.....	15.00	125.00
Gayety . White with red streaks.....	15.00	125.00
* Gloria . Sport of Weld. Coral with white edge	20.00	150.00
Hollywood Sim . Light pink petals with red overlay	18.00	150.00
* Laddie Sim (Res.). Pink sport of Mamie.	20.00	150.00
* Lavender Var. Littlefield . Orchid with purple stripe	15.00	125.00
* Louisa . Sport of Weld. Raspberry with white edge	20.00	150.00
Mamie . White with red streaks.....	15.00	125.00
Mohawk . Yellow variegated with pink stripes	15.00	125.00



GAYETY

	Per 100	Per 1000
Mrs. Christian Herter . Similar to Pelargonium	\$15.00	\$125.00
Peking Pink Littlefield . Dark pink to scarlet with white tip.....	15.00	125.00
Pelargonium . Mottled crimson.....	15.00	125.00
Peppermint Sim . Red and white with red penciling	15.00	125.00
Peppermint Stick Littlefield . Pink variegated	15.00	125.00
Raspberry Ice . White with pale orchid....	12.00	100.00
* S. Arthur Sim . White with red stripes.....	15.00	125.00
Sara Jane Knipe (Pat.). Brilliant rosy magenta, silver edges.....	15.00	135.00
Scarlet King . Sport of Pelargonium.....	15.00	125.00
Scarlet Sim . Sport of Sim. Similar to Scarlet King	15.00	125.00
Tetra-Sarah Jane (Pat.). Large flowered magenta. Silver edge.....	25.00	200.00
Var. Lavender Littlefield . Variegated lavender.	15.00	125.00

Minimum quantity: 100 of a variety unless specified otherwise. 250 or more of a variety at the 1000 rate. Shipped from Mass., Colorado, Ohio, and Indiana.
*New 1956-57 Introductions

YODER BROS. CARNATION CUTTINGS

WHITE

Price
Class

Aurora . Exceptionally large white. Flower size and heavy stem are points of emphasis. Performs best in higher than average Carnation temperatures, and with a narrow range of difference between day and night temperatures. An average to heavy producer.....	S-4
Electra (NEW). Large informal white. Petals are deeply serrated. Exhibits the vigor, stretch, and production of White Sim with an improved stem for winter flowering. Does not split	P
Imp. White Sim . Large white sport of Wm. Sim. Best under high winter light intensities to improve stem strength.	S-4
Northland . Large formal white. Long considered to be both productive and reliable in many sections of the country.	S-2

WHITE, Continued

Price
Class

White Apollo . White sport of Apollo. Unequalled for year round productivity. A marked improvement over Olivette for flower size and stem strength during the winter months. More versatile than Apollo since it is not subject to fading.....	S-4
White Littlefield . Large white. Sport of Sidney Littlefield..	S-2

LIGHT PINK

Aphrodite . A true light pink. An early producer with an early comeback. Best in high light intensity areas.....	S-2
Light Pink Littlefield . Peterson's sport of Sidney Littlefield. Color of Virginia Hercules.....	S-2
Pink Sim . Peterson's flesh-pink sport.....	S-3

YODER BROS. CARNATION CUTTINGS, Continued

SALMON PINK

Price
Class

- Ambrosia (NEW).** A smooth and unvarying salmon pink. A shade lighter than Venus. Unusual stretch and rigid stemmed growth during the winter months. A durable flower for shipping.....P
- Apollo.** A widely accepted salmon pink. Suitable in many areas of the country. Consistency in providing top quality flowers, coupled with high productivity, continue to lend favor to this variety.....S-5
- Athena.** A lustrous salmon-pink slightly deeper than Venus and possessing a greater color clarity than Apollo under low light intensities. A reliable winter producer. Has vigor, stretch, and rigid stems. Does not split.....S-4
- Salmon Sim.** Petersen's light salmon colored Sim sport. Identical in growth characteristics to Pink Sim.....S-3
- Venus.** A large, salmon-pink. Flawless color. Like Charm, possesses superb flower qualities coupled with a long, rigid stem. A noted exhibition variety. Performs most satisfactorily at Littlefield temperatures.....S-3

DARK PINK

- Hermes.** A good dark pink with high temperature color-retention tolerance. Becomes a scarlet pink during the winter months. Ships and keeps well. Rarely splits.....S-2
- Mentor.** Rich, rose-pink. Strong, rigid stems. Notable keeping and color retention properties throughout the year.....S-2
- Sidney Littlefield.** Gleaming rose-pink. Noted for size and quality of flower it produces. Intolerance of high temperatures for color retention.....S-2

SCARLET RED

- Cardinal Sim.** Large scarlet-red sport of William Sim. The most vigorous and productive of the red Sim sports. Less petal serration. Rarely splits.....S-3
- Ember Sim.** A brilliant scarlet sport of Wm. Sim. Flowers are larger and more heavily petalled.....S-2
- Red Sim.** An improved William Sim. Greater vigor and productivity.....S-3
- Red Apollo (NEW).** An interesting dark salmon-red sport of Apollo. More heavily petalled and larger flowered than its parent. Otherwise displays the same vigor and general growth habit of Apollo.....P
- Siren.** A bright scarlet. Combines heavy production with a fast comeback and uniform cropping on stems of medium length.....S-3
- Thor.** A vivid scarlet of medium size. Especially recommended for its dependable color retention during high temperature periods. Free and rapid growth.....S-2

YELLOW

- Midas.** A dependable yellow. Best winter performance attained under high light intensities. Fast and reproductive. Tolerates closer spacing than Apollo or the Sim varieties.....S-3
- Imp. Miller's Yellow.** An improved color selection from Miller's Yellow. Formerly known as "Shirley Ann." Color is clear and intense.....S-1
- Harvest Moon.** An amber-gold sport of William Sim. Richly colored.....S-1



AURORA

CRIMSON RED

Price
Class

- Titan.** An intense crimson-red. Dependable and continuous growth during the winter months. Recognized for its better than average shipping and keeping qualities among the crimson group.....S-1

NOVELTIES, VARIEGATED, ETC.

- Strawberry Sim.** Variegated red and pink Sim sport. An over-all narrow red pencilling diffused on a pink background. Background color markedly intensifies going into midwinter conditions. A striking novelty.....S-1
- Dark Frosted Sim.** Same color pattern as Scarlet Sim but less intense. Two-thirds of each petal from its base is diffused with dark pink pencillings. Petal margin blends to a light pink, providing a frosted appearance. Very stable. Heavier stems than Scarlet Sim.....S-1
- Gaiety.** Variegated Sim. Flesh pink background overlaid with bright red pencil pattern. More stable than Cooper's Variegated.....S-1
- Cooper's Variegated.** Light pink background with medium to large red pencil markings. One of the fastest and most reproductive of the Sim sports.....S-1
- Mamie.** Variegated Sim sport. White background over-toned with thin red pencil striping.....S-1
- Scarlet Sim.** A tone on tone Sim sport. Color ranges from an intense scarlet at the base of each petal to a frosty white at the petal margins. Color becomes most intense under low temperature winter condition.....S-1
- Cassandra.** A lively yellow variegated. Pink pencilling. Rarely splits. Flower has excellent substance and is an outstanding keeper.....S-2
- Nectar.** Large orange-yellow variegated with broad scarlet striping.....S-1

THE FOLLOWING PRICES APPLY TO THE NUMBER OF YODER BROS. CUTTINGS OF ANY ONE VARIETY PER SHIPMENT

Price Class	100	250-450 per 100	500-950 per 100	1000-2500 per 100	2500 up per 100
S-5	\$11.00	\$10.50	\$10.00	\$ 9.50	\$ 9.00
S-4	12.00	11.50	11.00	10.50	10.00
S-3	13.00	12.50	12.00	11.50	11.00
S-2	14.00	13.50	13.00	12.50	12.00
S-1	15.00	14.50	14.00	13.50	13.00
P	16.00	15.50	15.00	14.50	14.00



Ball Garden Roses

Sell Them to Your
Retail Customers as
STARTED PLANTS
for
Customer Satisfaction
and
Profit!

**CHRYSLER
IMPERIAL**

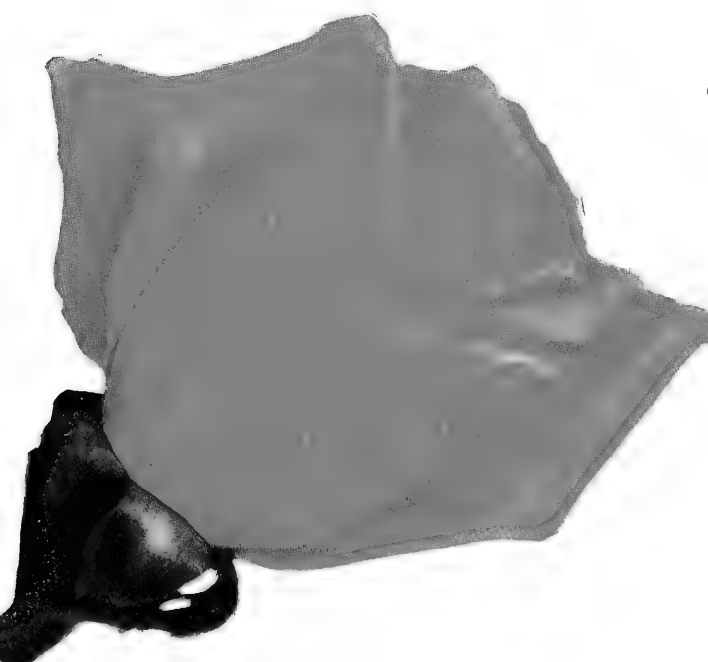
When you sell BALL GARDEN ROSES potted and growing, your customers are **assured** of getting Rose plants that will live and flower. As we all know, this is not always true when gardeners buy dormant Roses by mail or from corner grocery stores.

BALL GARDEN ROSES are the best obtainable. They are budded on contract for us by the finest West Coast growers. At the end of their second season of growth, BALL GARDEN ROSES are allowed to go dormant naturally, and are dug, graded, and packed in special refrigerated cars. These cars come directly to our West Chicago cold storage room (or eastern cold storage plants for eastern customers) where they are stored under controlled temperature and humidity

to maintain their dormancy until you get them. We are justly proud of BALL GARDEN ROSES and believe you and your customers will be too. If you are not one of our regular customers why not give us a trial order?

Place your order **EARLY!** BALL GARDEN ROSES are budded for us two years in advance. We do **not** buy Roses the last minute on the open market. When our crop is booked up we are sold out for the season. All orders accepted in order of their receipt.

Be sure to specify when you want your Roses shipped. We can ship any time from January through spring. See page 113 for "7 Rules for Starting Garden Roses." Containers for potting Roses are listed on page 111.



GOLDEN MASTERPIECE

PATENT HYBRID TEAS

Retail Minimum Retail Price	Variety and Description	Wholesale Price Each (Price you Pay)		
		10 Each	20-90 Each	100-250 Each
\$2.25	Blanche Mallerin (594). Pure white.	\$1.25	\$1.12½	\$1.05
2.00	* Capistrano (922). Bright pink.	1.10	1.00	.95
2.25	* Charlotte Armstrong (455). Red bud, cerise flower.	1.25	1.12½	1.05
2.50	* Chrysler Imperial (1167). Crimson. See illus. above.	1.40	1.25	1.20
2.25	Confidence (1192). Light pink to yellow.	1.25	1.12½	1.05
2.00	* Diamond Jubilee (824). Buff yellow.	1.10	1.00	.95
2.25	* Forty-niner (792). Vivid red and yellow.	1.25	1.12½	1.05
2.00	* Fred Howard (1006). Yellow edged pink.	1.10	1.00	.95
2.75	Golden Masterpiece (1284). Golden yellow. See Illus. at left.	1.50	1.37½	1.30
2.00	Golden Scepter (910). Yellow.	1.10	1.00	.95
2.25	Grand'mere Jenny (1148). Yellow, capucine red.	1.25	1.12½	1.05

PATENT HYBRID TEAS, Continued

Retail Minimum Retail Price	Variety and Description	Wholesale Price (Price you Pay)		
		10 Each	20-90 Each	100-250 Each
\$2.00	Happiness (911). Dark red.	\$1.10	\$1.00	\$.95
2.50	* Helen Traubel (1028). Pink apricot.	1.40	1.25	1.20
1.75	* K. T. Marshall (607). Pink flushed yellow.....	1.00	.87½	.80
2.75	La Jolla (1103). Pink, yellow and rose.....	1.50	1.37½	1.30
2.25	* Lowell Thomas (595). Lemon yellow.	1.25	1.12½	1.05
2.25	* Mirandy (632). Dark red, fragrant.....	1.25	1.12½	1.05
2.00	* Mission Bells (923). Vermillion pink.	1.10	1.00	.95
2.75	* Mojave (1176). Orange....	1.50	1.37½	1.30
2.25	New Yorker (823). Rich red	1.25	1.12½	1.05
2.25	* Nocturne (713). Dark red	1.25	1.12½	1.05
2.50	* Peace (591). Yellow edged pink.....	1.40	1.25	1.20
1.75	Rex Anderson (335). Pale lemon-white.....			\$1.00
2.00	Sleigh Bells (1004). White, creamy center.....			1.10
2.25	* Sutters Gold (885). Yellow, shaded red.....			1.25
2.50	* Tiffany (1304). Pink, yellow base.....			1.40
2.25	White Swan (1115). Pure white.....			1.25

PATENT GRANDIFLORAS

2.50	Buccaneer (1119). Sunshine yellow.....	1.40	1.25	1.20
2.00	Carrousel (1066). Deep rich red.....	1.10	1.00	.95
2.75	Montezuma (1383). Scarlet-orange.....	1.50	1.37½	1.30
2.50	* Queen Elizabeth (1259). Delicate clear pink. See picture above.	1.40	1.25	1.20
2.50	Roundelay (1280). Vivid glowing red.....	1.40	1.25	1.20

JIMINY CRICKET



CIRCUS



QUEEN ELIZABETH

Wholesale Price (Price you Pay)			
10 Each	20-90 Each	100-250 Each	
\$1.00	\$.87½	\$.80	
1.10	1.00	.95	
1.25	1.12½	1.05	
1.40	1.25	1.20	
1.25	1.12½	1.05	

Ball Garden Roses

Retail Minimum Retail Price	Variety and Description	PATENT FLORIBUNDAS			Wholesale Price Each (Price you Pay)		
			10 Each	20-90 Each	100-250 Each		
\$2.00	Baby Blaze (1362). Velvety cherry red.....		\$1.10	\$1.00	\$.95		
1.75	Betty Prior (340). Shell pink.....		1.00	.87½	.80		
2.50	* Circus (1382). Bicolor red and yellow. See picture below.		1.40	1.25	1.20		
2.00	Embers (1178). Brilliant scarlet.....		1.10	1.00	.95		
2.00	* Fashion (789). Coral pink.....		1.10	1.00	.95		
2.00	Frolic (1179). Clear pink.....		1.10	1.00	.95		
1.75	Goldilocks (672). Yellow.....		1.00	.87½	.80		
1.75	Independence (1036). Spectrum red.....		1.00	.87½	.80		
2.00	* Jiminy Cricket (1346). Coral orange, see opposite page		1.10	1.00	.95		
2.00	* Ma Perkins (1143). Coral shell pink.....		1.10	1.00	.95		
1.75	Pink Bountiful (601). Deep rose pink.....		1.00	.87½	.80		
1.75	Pinocchio (484) Rich salmon.....		1.00	.87½	.80		
1.75	Red Pinocchio (812). Carmine.....		1.00	.87½	.80		
1.75	Siren (1197). Vivid red.....		1.00	.87½	.80		
2.75	Spartan (1357). Reddish coral.....	SOLD OUT	1.50	1.37½	1.30		
1.50	Summer Snow (416). White.....	SOLD OUT	.90	.75	.70		
2.00	* Vogue (926). Cherry coral.....		1.10	1.00	.95		
2.50	* White Bouquet (1415). New white.....	SOLD OUT	1.40	1.25	1.20		
1.50	White Pinocchio (1010). White.....		.90	.75	.70		
1.50	* World's Fair (362). Deep red.....		.90	.75	.70		
1.50	Yellow Pinocchio (992). Yellow.....		.90	.75	.70		

PATENT CLIMBERS

2.50	Cl. Aloha (948). Coral pink.....	1.40	1.25	1.20
2.75	Cl. Chrysler Imp. (PAF). Flaming red.....	1.50	1.37½	1.30
2.50	Cl. Crimson Glory (736). Deep red.....	1.40	1.25	1.20
3.00	* Cl. Golden Showers (PAF) New yellow climber.....	1.65	1.50	1.40
2.50	* High Noon (704). Lemon yellow.....	1.40	1.25	1.20
2.00	Cl. King Midas (586). Yellow.....	1.10	1.00	.95
2.25	Cl. Peace (932). Yellow edged pink.....	1.25	1.12½	1.05

#1 ½ Grade 20% less than #1. Write us for special prices on more than 250 of any patented varieties. MINIMUM ORDER 10 PLANTS OF A VARIETY. ORDER IN MULTIPLES OF 10. Prices are "per variety" on all Patent Varieties regardless of total number of bushes you order.

STANDARD HYBRID TEA ROSES

RED

Ami Quinard
Angels Mateau
Better Times
Christopher Stone
Crimson Glory
Etoile De Hollande
McGredy's Scarlet
Red Pres. Hoover
Red Radiance
Poinsettia

YELLOW

Eclipse
Golden Dawn
Joanna Hill
McGredy's Yellow
Mrs. E. P. Thom
Mrs. P. S. DuPont
Soeur Therese

PINK

Betty Uprichard
Editor McFarland
Los Angeles
Margaret McGredy
Peters Briarcliff
Picture
Pink Dawn
Pink Radiance
The Doctor

BICOLOR

Autumn
Condesa De Sastago
Countess Vandal
Pres. Hoover
Talisman

WHITE

Frau Karl Drushki
K. A. Victoria



BETTER TIMES

*All-America Rose Selection Winners.

Ball Garden Roses

RED

Eutin
Floradora
Frensham
Imp. Lafayette
Red Ripples (SOLD OUT)

PINK

Cecile Brunner
Else Poulsen
Mrs. R. M. Finch
Poulsen's Bedder
Rosenelfe

SALMON & YELLOW

Golden Salmon
Poulsen's Yellow

WHITE

Dagmar Spæth

STANDARD CLIMBERS

RED

Cl. Blaze
Cl. Etoile De Hollande
Cl. Paul's Scarlet

WHITE

Cl. City of York
Cl. M. Jules Bouche
Cl. Snowbird

YELLOW

Cl. Gold Rush
Cl. Silver Moon
Cl. Yellow Talisman

PINK

Cl. New Dawn
Cl. Pink Radiance

BICOLOR

Cl. Pres. Hoover
Cl. Talisman

IMPORTANT!

Prices quoted at right are F.O.B. West Chicago, or F.O.B. New Jersey or Pittsburgh if your order totals 100 or 250 plants or multiples thereof (our standard packing case sizes) and if your order is received by us before November 10.

PRICES STANDARD VARIETIES

	Per 10	Per 100	Per 1000
No. 1 Grade.....	\$6.50	\$60.00	\$550.00
No. 1½ Grade.....	5.25	47.50	425.00

All Rose bushes sold in units of 10 plants of a variety and grade or multiples of 10. Standard varieties may be grouped for quantity rate.

TREE ROSES

We offer a very complete list (65 varieties) of both patented and standard garden Roses on 30 to 36 inch stems. We will be glad to mail you our complete list of varieties available. We do not stock Tree Roses. All orders must be in by November 1 for shipment F.O.B. West Chicago from early January on. Minimum order 20 trees, 5 or multiples of 5 of any one variety.

Either patented or standard varieties may be grouped for the lowest quantity price, but patented and standard varieties may **NOT** be grouped together.

PATENTED VARIETIES

	Grade 1 Each	Grade 1½ Each
20-95 Trees	\$3.50	\$3.30
100-245 Trees	3.25	3.05
250-Up	3.00	2.80

STANDARD or NON-PATENTED VARIETIES:

20-95 Trees	\$3.00	\$2.85
100-245 Trees	2.75	2.60
250-Up	2.50	2.35

BIRD PERENNIAL POTS

Garden Roses already started in pots bring premium prices and satisfied customers.

The 9½ inch deep Perennial Pot is ideal for this purpose—made of a tough, durable material with a hard, smooth coating inside and out—solid stapled bottom with openings for drainage.

PRICES

Height	Top Diam.	Wt. per 1000	Per Case of 200	Per 1000
9½ in.	7 in.	355 lbs.	\$14.50	\$69.00

Minimum order, case of 200. Three cases at 1000 price. Prices net, F.O.B. our West Chicago warehouse or factory near Boston.

NOTE: For other sizes of Perennial Pots, see page 127.



Ball Forcing Pot Roses

Our Roses for pot forcing are budded to our order by a West Coast specialist. As a result of years of experience, we are confident that no finer plants are available at any price. We earnestly suggest placing your order with us EARLY so we can furnish you the varieties and grades you need. Our pot forcing Roses are budded for us 2 years in advance. We do **not** buy plants the last minute on the open market. When our crop of a variety is booked up, we are sold out for the season. All orders accepted in the order of their receipt. Shipment December through February. See page 113 for cultural suggestions on pot Rose forcing.

We recommend XXX grade plants for large specimen plants and XX grade for medium sized plants. Varieties we particularly recommend are starred (*).

Orders for case lots or more including our special pot Rose forcing collection received by us before November 1 may be shipped F.O.B. West Chicago, New Jersey, Pittsburgh, or Minnesota. All other orders shipped F.O.B. West Chicago. Minimum order, 10 plants of a variety.

OUR SPECIAL POT FORCING ROSE COLLECTION

—all XXX grade plants

60 Triumphe D'Orleans	10 Margo Koster
10 Garnette	10 Gloria Mundi
	10 Magna Charta

\$63.00 including packing charge.

PATENT VARIETIES

- ***Carol Amling** (Pat. 1126). A light coral pink sport of Garnette. Excellent.
- Crimson Rosette** (Pat. 901).
- Irene of Denmark** (Pat. 889). White.
- Pink Rosette** (Pat. 902). Soft pink.

Prices on each of above patented varieties:

XXX GRADE

10 plants, **\$1.00** each; 20-90 plants, **\$87½** each; 100-250 plants, **\$80** each; More than 250 plants, **\$75** each.

Minimum order 10 of a variety.

XX GRADE

10 plants, **\$80** each; 20-90 plants, **\$70** each; 100-250 plants, **\$64** each; More than 250 plants, **\$60** each.

Minimum order 10 of a variety. Prices on patented varieties are **per variety**. Patented varieties **cannot** be grouped with standards for quantity prices.

STANDARD VARIETIES

*TRIUMPHE D'ORLEANS

The most widely grown and easiest forcing variety. Carmine or cherry red. Excellent for Easter and later.

Ball Pink. Light rose pink.

Bonfire (Climber). Scarlet. Used for particularly large specimen plants that are trained into "basket" shapes, large circles, etc.

Dick Koster. Bright salmon rose.

***Garnette.** This popular floribunda cut flower variety is excellent for pot forcing. Attractive bronzy-green foliage and rich red flowers.

Gloria Mundi. Salmon.

Magna Charta. Bright pink.

***Margo Koster.** The popular salmon-orange with globular shaped flowers.

***Mother's Day.** A red sport of Margo Koster. Excellent for Easter and later.

Prices on above standard varieties:

XXX GRADE: 69c each or 55c each for orders totaling 1,000 or more. **Minimum order 10 of a variety.**

XX GRADE: 59c each or 45c each for orders totaling 1,000 or more. **Minimum order 10 of a variety.**

SPECIAL CASE PRICE ON STANDARD VARIETIES ONLY:

Case of 100 plants, XXX grade.....	\$ 60.50
Case of 200 plants, XXX grade.....	121.00
Case of 160 plants, XX grade.....	72.50

All **standard varieties** may be grouped to take advantage of lowest quantity price. Packing on Pot Forcing Roses charged at cost.

MANETTI

We offer this Rose understock for cut flower Rose plant grafting. Grown by a Pacific Northwest specialist. Delivery in early January. Sold in case lots only. Shipped F.O.B. Pacific Northwest or Chicago, Illinois.

Size 6/9.....\$60.00 per 1000, packed 5000 per case.

Size 9/12.....\$65.00 per 1000, packed 2500 per case.

TRY MINIATURE ROSES

The following varieties are excellent for border work. All are very hardy. Those best adapted for pot forcing are starred (*); may be flowered in 6 weeks in a 60° night temperature. These are furnished as "own root" 3 inch plants in a dormant condition. DELIVERY either spring or fall.

Robin (NEW—P.A.F.) New red. **\$1.00** each.
Baby Gold Star (Pat. 407). Golden yellow, to 14 in. tall. **65c** each.

***Cinderella** (Pat. 1051). Cream white, to 10 in. tall. **55c** each.

Midget (Pat. 466). Double red, to 9 in. tall. **55c** each.

***Pixie** (Pat. 408). Double white, to 8 in. tall. **55c** each.

Red Imp. (Pat. 1032). Double crimson, to 10 in. tall. **55c** each.

***Sweet Fairy** (Pat. 748). Appleblossom, to 10 in. tall. **55c** each.

Tinker Bell (Pat. 1293). Vivid pink, to 8 in. tall. **55c** each.

***Tom Thumb** (Pat. 169). Crimson buds, to 9 in. tall. **55c** each.

Rouletti. Rose pink, to 12 in. tall. **50c** each.

Minimum order, 50 plants, 10 plants of a variety. F.O.B. Pennsylvania. Cultural instructions with each order.



Tips On Rose Culture

7 RULES FOR STARTING GARDEN ROSES

One of the few tricky parts of Garden Rose culture is getting the plants off to a good start. The rules are simple but exacting.

- 1. Order your bare-root dormant plants and pots for delivery at least 2 months before you want to sell them as started growing plants.
- 2. When your Rose plants arrive they will be packed in containers and material that protects them from frost and drying out. If your plants arrive frozen, it is wise to file a claim with the transportation company, but there's a good chance that they will thaw out with no loss. If frozen, pack them up again and store in a cool (35° is ideal) dark place for a few days.
- 3. The most important point in handling Rose plants is to be sure the plant is NEVER allowed to dry out—either its roots or canes. It is a good idea to soak the plants in water for an hour or two as they are unpacked.
- 4. Rose plants should be pruned and potted IMMEDIATELY upon receipt. If you can't get at them immediately, leave the plants in their shipping container until you are ready to pot them.
- 5. Pruning Rose plants is another important fundamental. At the time of potting the canes should be cut off to within 6 or 8 inches of the crown of the plant. This applies to all varieties and types of Roses including the climbers. Also trim off any damaged or thick, heavy roots that are excessively long. The finer roots are the important ones.
- 6. There are several types of Rose pots available. They should be at least 6 or 8 inches wide at the top and 8 or 10 inches deep. Soil should be of a loose consistency to provide aeration and drainage. Fill up the pot with soil with frequent tamping or firming of the soil as the pot is being filled.
- 7. IMMEDIATELY AFTER POTTING, the pots should be thoroughly soaked with water. This can be done by repeated hose waterings or the pot can be immersed in a tub of water until the soil in the pot is completely saturated. The pots should be placed on a surface that allows drainage out of

the bottom of the pot. Plants should be covered with some material such as burlap or straw and this covering should be kept constantly wet until growth has started—usually from 1 to 3 weeks. The time required to start dormant Roses varies with the dormancy of the plant and by varieties. Don't be discouraged if some plants start out quicker than others. 55° is a good temperature for starting Roses although some growers prefer 45 to 50° to encourage root action before top growth begins.

Just as soon as top growth has started, the covering should be removed and the plants exposed to full sun.

WHICH GRADE OF ROSES SHOULD YOU BUY?

BALL GARDEN ROSES are graded according to standards established by the American Association of Nurserymen. This grading system provides a certain minimum number of canes of certain minimum lengths. These grades vary with varieties (lighter growing varieties have lower standards than heavier growing varieties). Also floribunda varieties have lighter grading standards because of their growing habits.

No. 1 grade Roses are the heaviest bushes and of course, will produce the largest plants in the garden. No. 1½ grade bushes are smaller than No. 1's but are in no sense culls or any the less salable plants; they simply have fewer canes. Many florists buy 1½'s with their 1's to offer at a lower price. No. 2 grade bushes are the smallest grade and generally have only 1 strong cane as compared to 3 and 2 canes respectively for grades 1 and 1½. If you are interested in No. 2 grade bushes we will gladly quote on your requirements.

FORCING POT ROSES

Pot forcing Roses should be potted approximately 3 months before they are to flower. Since they should be potted immediately upon receipt, order the plants for delivery at the time you want to pot them.

As soon as plants are received they should be unpacked, immersed in water for a short time (or wet down thoroughly and covered with moist burlap for a day or two) and potted. If plants arrive in a frozen condition, chances are they can be successfully thawed out by leaving them in their packing cases and storing in a 35° temperature for 3 or 4 days. If freezing is suspected, be sure to notify the transportation company immediately so that a claim may be filed later if the plants are damaged.

At the time of potting, dormant plants should be pruned back to within 6 or 8 inches of the bud union—the swollen section of the lower stem from which the canes grow. Generally speaking, higher pruning results in taller plants and lower pruning (6 inches) results in shorter, bushier plants.

Any good greenhouse soil with 1 part in four of peat moss or well rotted manure is satisfactory. Be sure to tamp the soil well as plants are potted so that no air pockets form around the roots. A 6 or 7 inch pot is required for proper root growth.

During potting, roots should be pruned as little as necessary. Bear in mind that the fine, fibrous roots are the ones that help the plant off to a quick start.

Immediately after potting, Rose plants should be placed in 50° and kept well watered and in high humidity. After 2

weeks roots will have become established and the temperature should be increased to 58° to encourage top growth. Rose plants require plenty of water (both in the soil and in the atmosphere) during their first two to four weeks. This may be accomplished by frequent syringing or misting. Some growers cover plants with wet burlap; however, this covering should be removed as soon as shoots begin to appear.

As soon as shoots are well started (2 or 3 weeks) the plants can be moved into full sunlight. Feeding with a soluble nitrogen or a balanced fertilizer should be done about three times during the plant's growth with the first application about 6 weeks after potting.

The question of whether or not to pinch pot Roses varies with growers. Some growers do not pinch at all. Others use pinching not only to develop more flowers but also to help time their crop. For instance, if an Easter crop is planted January 1 and given a soft pinch February 1, the plants should flower by April 1—8 weeks after pinching. A Mother's Day crop should be pinched 7 weeks before flowering. Control of flowering time is also possible by adjusting temperatures. The basic forcing temperature should be 58° but the crop can be advanced with a higher temperature (62°) or retarded with lower temperatures. Bear in mind however, that temperatures above 58° are apt to result in loss of quality in the finished plant. Flower shattering, for instance, is encouraged by too high temperatures.

Plants forced for Easter and not sold may be pinched back for a later crop. A pinched plant should flower in about 6 weeks from an Easter pinch.

Ball Geraniums

Certainly one of our leading pot plant and out-door bedding plants. As you will see below, we offer a complete line of cuttings from California propagators as well as 2 1/4 inch plants from Eastern specialists. We highly recommend our Geranium cuttings and 2 1/4's as being the finest available—regardless of price.

CUTTINGS

All our cuttings come from California specialists and are available throughout the year. We have bought from these propagators for several years, and are confident that no

cleaner or higher quality cuttings are available. When ordering be sure to specify whether you want ROOTED or UNROOTED cuttings.

Appleblossom	Louise	Pink Phenomenal
Avalon Red	Madonna	Pink Sensation
Beaute Poitevine	Magenta Ruby	Polly Red
Calif. Beauty	Maryland	Presilly
Calif. Giant	Michell's Sensation	Pride of Camden
Castellane	Minnetonka	Radio Red
Double Dryden	Mme. Buchner	Red Barney
E. D. Hill	Mme. Landry	Red Fiat
Emil David	Montmort	Ruby
Fiat Supreme	Mrs. Gloede	Salmon Fiat
Frances Perkins	Mrs. Lawrence	Salmon Ideal
Gloede	My Beauty	Salmon Supreme
Gregerson's White	New Ruby	Sandra Irene
Helen Mitchell	Olympic Red	S. A. Nutt
Imp. Red Fiat	Orange Ricard	Snowball (Springfield White)
Imp. Ricard	Paul Crampel	Springfield Scarlet
Irrington Beauty	Picardy	Springfield Violet
Jean Viaund	Pink Abundance	Wynona
Lady Jane	Pink Better Times	
Love (Springfield Orange)		

Prices on all above varieties:

Unrooted cuttings, \$4.00 per 100, \$35.00 per 1000.

Rooted cuttings, \$7.50 per 100, \$70.00 per 1000.

2 1/4-INCH PLANTS

The following varieties are grown for us by specialists. Available July through May.

NEW VARIETIES. The following 3 novelties are shipped F.O.B. Ohio only.

Mary Angela. Similar to Salmon Irene. Very large double flowers that do not shatter or fall. 2 1/4 inch plants priced at \$26.00 per 100, \$250.00 per 1000. Minimum order, 100.

Salmon Irene. Rich salmon.

Springtime. Light salmon.

Above two varieties available as Rooted Cuttings at \$25.00 per 100; 2 1/4 inch plants at \$35.00 per 100. Minimum order, 100 plants.

Better Times
Calif. Beauty
Dark Red Irene
Enchantress Fiat
Enchantress Supreme
Genie. Rose pink
Imp. Ricard
Irene
Irrington Beauty
Mme. Buckner
Mme. Landry
Olympic Red

Penny. Bright neon pink
Pink Fiat
Radio Red
Red Barney
Red Landry
Red Fiat
Salmon Supreme
Snowball
Springfield White
White Selection. Sport of Madonna, more double.

Prices on all above varieties, \$16.00 per 100, \$150.00 per 1000. Minimum order 100. Shipped F.O.B. Michigan, Indiana, Ohio, Illinois, and Wisconsin where available.

Enchantress Fiat **Irene** **Pink Fiat**

Prices on above three varieties:

Unrooted cuttings, \$4.25 per 100; \$37.50 per 1000.

Rooted cuttings, \$8.00 per 100; \$75.00 per 1000.

Ivy Leaf Assortment.

Unrooted cuttings, \$4.00 per 100, \$35.00 per 1000.

Rooted cuttings, \$7.50 per 100, \$70.00 per 1000.

Fancy Leaved Assortment.

Unrooted cuttings, \$4.50 per 100, \$40.00 per 1000.

Rooted cuttings, \$9.00 per 100, \$85.00 per 1000.

Orders for rooted cuttings are rooted to order only—allow 6 weeks for delivery. Be sure to specify on your orders whether you want ROOTED or UNROOTED cuttings.

MINIMUM ORDER, 1500 CUTTINGS, 100 of a variety. 250 or more cuttings of any variety billed at the 1000 price. Because of the highly perishable nature of Geranium cuttings, we ship by AIR FREIGHT ONLY. 3000 cuttings can be shipped at minimum air freight rate. All cuttings shipped F.O.B. California. Be sure to specify on your order the airport to which cuttings are to be sent and your telephone number where air freight companies can call you upon arrival of the shipment.

PELARGONIUMS

We offer rooted cuttings and 2 1/4 inch plants from our specialist growers. Available fall through spring.

NEWER VARIETIES

Circus Day **Conspicuous** **Gay Nineties** **Grand Slam**
Rooted cuttings of above, \$22.50 per 100.
2 1/4 inch plants, \$28.00 per 100.

STANDARD VARIETIES

*Amanda
*Azalea
*Baby Snooks
*Ballerina
*Beverly Hills
*Chicadee
*Easter Greetings
*Edith North
*Ernest Brunton
*Gardener's Joy
*German Glory
*Grossmama Fischer
*Jessie Jarrett
*Lavender Queen
*Lois MacKay
*Lowell
*Lucy Becker

MacKay No. 2
MacKay No. 10
MacKay No. 12
Mackensen
*Marie Vogel
*Mrs. F. Bachler
*Mrs. Loyal
*Mrs. Mary Bard
*Orchid Edith North
*Pink Vogel
*Rhapsody
*Santa Monica
*Salmon Splendor
*Salmon Springtime
*Springtime
*Stardust
*Swabian Maid

Prices on above standard varieties:

Rooted cuttings, \$15.00 per 100, \$140.00 per 1000.

2 1/4 inch plants, \$20.00 per 100, \$190.00 per 1000.

Minimum order on all above Pelargoniums, 100 plants. Shipped F.O.B. Indiana. Those marked with an asterisk (*) are also available from New Jersey as 2 1/4 inch plants only.

Hydrangeas

As you will note below, we offer Hydrangea plants in all stages of growth. For the specialist, unrooted cuttings, rooted cuttings, 2 1/4 and 3 inch plants for delivery during the spring months. For the miscellaneous crop grower who needs a few Hydrangeas or who does not want to grow his own, we offer a complete line of Dormant sizes available during the winter with buds completely set and ready for forcing.

Dormant Hydrangeas should be ordered for delivery in late December for Easter flowering. For flowering between Easter and Decoration Day, allow 3 months of forcing. In general the following varieties are better for early or Easter forcing: Europa, Hamburg, and Regula. The following are best for midseason forcing: Engel's White, Jean Merritt,

Kuhnert and Strafford. The following are best for late forcing: Merveille and Rosabella.

There is a considerable difference of opinion among growers as to varieties best suited to pink and blue forcing. In general however, the following varieties tend to produce good blue flowers easily: Kuhnert, Merveille, Rosabella, Red Star, and Europa. The following tend to produce clear pink flowers easily: Strafford, Europa, Kuhnert, Altoona, and Rosabella.

As you will note, our offering of Hydrangea plants is arranged by the state in which the plants are grown. All our suppliers are Hydrangea specialists and we can assure you the finest stock available.

SHIPPED F.O.B. MARYLAND

1956 INTRODUCTIONS:

Monte Forte Pearl. Carmine red. **Sanctis.** Medium red.
Sainte Therese. Excellent white. **Zurich.** Light red.

Prices above 4, each:

Rooted Cuttings (spring delivery): **\$30.00** per 100;
3 inch (1 shoot per plant), **\$50.00** per 100.

Dormant plants (fall and winter delivery) of above varieties priced as follows per 100 plants:

3 inch (1 shoot), **\$50.00**;
4 inch (2 or more shoots), **\$ 80.00**;
5 inch (3 or more shoots), **\$100.00**;
6 inch (4 or more shoots), **\$150.00**;
7 inch (7 or more shoots), **\$250.00**.

NOVELTIES:

Charm. Carmine red. **Red Star.** Brilliant red.
Dundalk. Medium red. **Rose Supreme** Rose pink.

Prices above 4, each:

Rooted cuttings (spring delivery), **\$20.00** per 100.
3 inch (1 shoot per plant), **\$40.00** per 100.

Dormant plants (fall and winter delivery) of above varieties priced as follows per 100 plants:

3 inch (1 shoot), **\$40.00**;
4 inch (2 or more shoots), **\$ 70.00**;
5 inch (3 or more shoots), **\$ 85.00**;
6 inch (4 or more shoots), **\$125.00**;
7 inch (7 or more shoots), **\$200.00**.

STANDARD VARIETIES:

Engel's White. Strong grower. **Merveille.** Light red.
Europa. Salmon pink. **Regula.** White.
Hamburg. Carmine. **Rosabella.** Rose pink.
Jean Merritt. Dark pink. **Strafford.** Dark pink.
Kuhnert. Rose pink.

Prices above 9, each:

Rooted cuttings (spring delivery), **\$16.00** per 100;
3 inch plants (1 shoot per plant), **\$30.00** per 100.

Dormant plants (fall and winter delivery) of above varieties priced as follows per 100 plants:

3 inch (1 shoot), **\$30.00**;
4 inch (2 or more shoots), **\$ 60.00**;
5 inch (3 or more shoots), **\$ 70.00**;
6 inch (4 or more shoots), **\$100.00**;
7 inch (7 or more shoots), **\$150.00**.

All above plants sold in units of 25 per variety.

SHIPPED F.O.B. VIRGINIA

Our Virginia specialist offers **2 1/4 inch plants** from stock plants grown outdoors. Plants established in 2 1/4 inch pots. Spring delivery. Excellent quality. Minimum order, 200 plants. **Strafford**, **\$20.00** per 100. **Merveille**, **\$20.00** per 100.

SHIPPED F.O.B. OREGON

We offer **UNROOTED CUTTINGS** of the following varieties for delivery as shown.

	Soft Wood Cuttings May to July 15 Delivery		Hard Wood Cuttings January to March Delivery	
	Per 100	Per 1000	Per 100	Per 1000
Hamburg. Carmine.	\$6.00	\$55.00	\$8.00	\$75.00
Strafford. Dark pink....	8.00	75.00	10.00	95.00
Ami Pasquaar. Red....	6.00	55.00	8.00	75.00
Charm. Carmine red....	13.00	.....	15.00	.....
Engel's White	8.00	75.00	10.00	95.00
Europa. Salmon pink....	6.00	55.00	8.00	75.00
Kuhnert. Rose pink....	6.00	55.00	8.00	75.00
Regula. White.	6.00	55.00	8.00	75.00
Southland. Carmine	13.00	.....	15.00	.....
Rosabella. Rose pink....	6.00	55.00	.....	.....

250 cuttings priced at the 1000 rate.

SHIPPED F.O.B. WEST VIRGINIA

Our West Virginia specialist grower produces DORMANT PLANTS of only four varieties; Merveille and Kuhnert intended primarily for blue forcing; Strafford for pink forcing; and the white, Regula. We highly recommend these plants for forcing purposes. Delivery late December to February 1, only.

	Merveille & Kuhnert		Strafford & Regula	
	Per 100	Per 1000	Per 100	Per 1000
4 inch				
(1 cane)	\$45.00	\$425.00	\$47.00	\$450.00
4 inch				
(2 canes)	57.00	550.00	60.00	575.00
4 inch				
(3 canes)	67.50	650.00	70.00	675.00
4 inch				
(4 canes)	75.00	725.00	77.50	750.00
5 inch				
(1 cane) .....	.....	.....	60.00	550.00
5 inch				
(2 canes)	67.50	600.00	70.00	650.00
5 inch				
(3 canes)	75.00	700.00	80.00	750.00
5 inch				
(4 canes)	85.00	800.00	90.00	850.00
5 inch				
(5 canes)	115.00	950.00	120.00	1000.00
5 or 6 inch				
(6/10 canes)	135.00	1,300.00	165.00	1,500.00
7 inch				
(6/10 canes)	175.00	.....	185.00	.....

250 plants billed at 1000 rate.

Begonias

FIBROUS ROOTED (Semperflorens)

One of our most versatile plants. Fibrous Rooted Begonias can be sold in flowering sizes as small as a 2 1/4 inch pot plant and as large as a 6 or 8 inch size. They respond quite well to low light, high temperature conditions of our modern homes. Particularly the stronger growing varieties do quite well as outdoor bedding plants if given partial shade. Our Fibrous Rooted Begonias are shipped in 2 inch plant bands and packed in our special Ball-Pak that assures arrival in good condition. Buy 2 inch plants in the fall for growing on into larger plants for spring or buy them during the winter or spring for quick turn-over in smaller sizes. Repotting should be done in a half peat-half soil mixture. Temperatures of at least 60° are necessary for proper growth. Also partial shade during the bright summer months.

DWARF CLASS

Adeline. Free flowering, bright pink.

Ball Deep Rose. Rosy red in winter, bright pink in spring and summer.

Luminosa Compacta. Free flowering scarlet-red.

Pink Pearl. (F₁ hybrid grown from originator's seed). Similar to Adeline in growth and color. More vigorous growth.

Red Pearl. (F₁ hybrid grown from originator's seed). Identical to Pink Pearl except for its Luminosa-red color.

Snowbank. Large glistening white flowers on dense growing plants. Best white.

INTERMEDIATE CLASS

*(T) **Carmen.** Bright rose-pink flowers with bronze leaves.

(T) **Indian Maid.** Scarlet flowers with bronze foliage.

(T) **Scandinavia Pink.** Free flowering bright rose pink. Bushy habit.

(T) **Scandinavia Red.** Identical to above except for its bright red color.

(T) **Scandinavia White.** Same as above except white.

Assortment of above varieties in both the Dwarf and Intermediate class.

Prices on above: \$12.00 per 100; \$100.00 per 1000. 250 supplied at the 1000 rate. Shipped in units of 50 plants in our Ball-Pak. Minimum order, 100; 25 of any one variety. Order in multiples of 50. Available September to June. F.O.B. Ohio. *Those varieties with a (T) are also available F.O.B. Texas packed in 2 1/4 inch Jiffy-Pots.

DOUBLE VARIETIES

Geneva Scarlet Geneva White Westport Beauty, pink

Prices on above: 2 1/4 inch plants shipped F.O.B. Ohio, \$25.00 per hundred. Minimum order, 50 plants per variety. Available fall through June.



Each Ball-Pak contains 2 of these 25 band PlanTrays. Your small Begonias from Ball's will be just like the beauties pictured here.

SCANDINAVIAN BEGONIAS (Norwegian)

Easy to grow, sturdy plants, thicker leaves and long lasting flowers are the features of these new Begonias. Propagation is best left to a specialist. Buy 2 1/4 inch plants, pot to 4's in a light soil mixture and then to 5 or 6 inch flowering pots. In flowering sizes feed every 2 weeks with ammonium sulphate, 1 oz. to 2 gals of water. One thickness of cheesecloth shade during the summer helps. Spray with Fermate or Parzate during the summer and keep foliage dry to prevent botrytis. A 55° night temperature is recommended for forcing.

For Christmas flowering buy 2 1/4 inch in June. For October 15 flowering, buy 2 1/4 inch in April or May, shift to flowering size pots by July 15; black cloth shade between 5 PM and 7 AM beginning August 15 until buds are well set. For April 1 flowering, buy 2 1/4 inch in September and light October 1 to February 1 with 100 watt bulbs placed 3 1/2 feet above plants and 5 feet apart in suitable reflectors.

Tove. Medium pink, large flowers and leaves. Early.

Karolina Solbachen Skavane Spirit of Norway

Above varieties are very similar. Color deeper than Tove. Foliage smaller and growth more compact. Flowers normally for Christmas.

Red Solfheim

Dark Marina

Excellent dark pink (almost red) varieties. Compact growers.

Dark Solbachen. Dark pink flowers, dark green foliage. Smaller and more compact grower than others. Slower grower but flowers for Christmas.

Prices on above varieties: \$45.00 per 100; \$400.00 per 1000. 250 plants at the 1000 rate. Varieties may be grouped for quantity price. Minimum order 50 plants of any one variety. Order in multiples of 50 plants. Shipped F.O.B. New York. Shipment April 15 to August 1.

SPECIAL COLLECTION OFFER

A collection of the above Scandinavian varieties, consisting of some of each variety, labeled. 50 plants for \$25.00. Shipped F.O.B. New York.

MELIOR (Christmas) BEGONIAS

Culture same as outlined above for Scandinavian varieties except forcing temperature should be 60°. May be shaded for early Fall flowering and lighted for spring flowering.

Marjorie Gibbs

Lady Mac

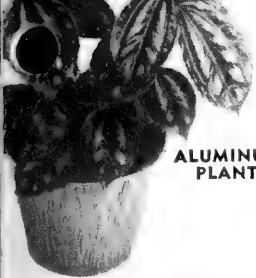
Melior Improved

Prices on above: 2 1/4 inch plants, \$40.00 per 100; \$350.00 per 1000. 250 plants at the 1000 rate. Varieties may be grouped for quantity price. Minimum order 50 plants per variety. Order in multiples of 50 plants per variety. Shipped F.O.B. New York.

REX BEGONIAS

We offer an assortment of varieties. 2 1/4 inch plants. \$40.00 per 100. Minimum order 25 plants. Shipped F.O.B. Ohio.

Coralline Lucerne. (True Angel Wing Begonia). 2 1/4 inch plants. Minimum order 25 plants. \$25.00 per hundred. Shipped F.O.B. Ohio.



**ALUMINUM
PLANT**



**CHINESE
EVERGREEN**



**DRACAENA
SANDERIANA**



**FICUS
DOESCHER**

Ball Decorative Foliage Plants

The sale of Foliage or "green" plants has risen phenomenally during the past 15 years. EVERYONE with an apartment or house buys them—not only once but several times a year. You can buy smaller-sized plants as listed below and either sell them for a quick-turnover crop or grow them on into larger sizes for increased profit. Many growers are buying larger sized plants for a "high ticket" quick turnover crop.

BALL DECORATIVE FOLIAGE PLANTS are produced by leading Florida specialist growers. You will find our prices competitive and above all, **our quality is unexcelled**. If you are not one of our regular Foliage Plant customers, why not give us a trial order?

We particularly solicit standing orders for Foliage Plants. When ordering be sure to specify delivery date and at what intervals repeat shipments are to be made.

ALUMINUM PLANT (Pilea Cadierei)

	Per 100	Per 1000
Rooted Cuttings with 4, 8 leaves.....	\$ 6.00	\$ 55.00
2 1/4 inch plants.....	16.00	

Available throughout the year. Minimum order 100 plants.

CHINESE EVERGREEN (Aglaonema simplex)

Widely used in dish gardens. Rooted cuttings:

	Price Per 100	Price Per 1000
3/5 inch —3/6 leaves.....	\$ 9.00	\$ 80.00
4/6 inch —4/6 leaves.....	12.00	110.00
5/7 inch —4/7 leaves.....	14.00	128.00
6/8 inch —5/7 leaves.....	22.50	215.00
8/10 inch —6/8 leaves.....	27.50	260.00
10/12 inch —6/9 leaves.....	32.50	310.00
12/15 inch —6/9 leaves.....	37.50	365.00

Available throughout the year. Minimum order 100 cuttings of sizes 3/5 inch, 4/6 inch, and 5/7 inch. Other sizes 50 cuttings minimum.

CROTON

Used mostly for outdoor landscape work. Not well suited as a house plant. Requires full sun, plenty of water, and at least 65°. Available spring and summer. Minimum order 50 plants.

Size	2 1/4 inch	2 1/2 inch	3 inch
Per 100	\$27.50	\$37.50	\$53.50

Rooted Cuttings. These are from a particularly brilliant mixture of large leaved varieties. We consider this the finest strain of Crotons available. **\$70.00** per 100.

FIVE IMPORTANT POINTS TO REMEMBER IN GROWING FOLIAGE PLANTS

1. Soil mixtures should be heavily organic. For instance, a mixture of 1 part greenhouse soil, 1 part sand and 2 parts peat moss is good.
2. Regular feeding is important to keep plants growing and in good leaf color. Use either a balanced fertilizer or nitrogen alone fed in liquid form.
3. Temperatures should be a **minimum** of 65 to 70°, and higher than this for certain kinds.
4. High relative humidity is important. A mist installation is ideal. Otherwise keep walks and under benches wet constantly. 80% relative humidity is ideal.
5. Shade is important. Light shade during the northern winter months and heavy shade during summer. Shade prevents sunburning and helps bring out beautiful colors and textures of leaves.

DIEFFENBACHIA

	Per 100	Per 1000
Picta. 3 inch	\$32.50	\$285.00
Roehrsii. 3 inch	43.50	400.00

Shipped in light soil in plastic pots. Thirty-six 3 inch plants to a carton. Minimum order 36. Order in units of 36.

DRACAENA

Needs lots of water. In fact, will thrive on "wet feet." Prefers temperatures above 70°.

	Per 100	Per 1000
Godseffiana. Shrubby with yellow-dotted glossy leaves.		
Rooted cuttings—5/9 leaves.....	\$12.00	\$110.00
2 1/4 inch with 5/9 leaves.....	17.00	160.00

Sanderiana. Gray-green leaves bordered white.		
Rooted cuttings—5/10 leaves.....	17.00	160.00
2 1/4 inch with 6/10 leaves.....	22.50	210.00

Minimum order 50 plants of Sanderiana 2 1/4 inch size; others 100 plants. Available throughout the year.

FICUS (Rubber Plant)

We offer rooted moss-layered cuttings with 6 or more leaves.

* Decora. An improved <i>Elastica</i> . Wider, fully leaved; color deep green to metallic bronze. 10 plants.....	Per 100 \$11.00
* Doescheri. With yellow variegated leaves.....	45.00
* Elastica. Standard green leaved kind.....	35.00
Pandurata. Large leathery leaves.....	80.00

Available throughout the year; minimum order of the above three varieties, 25 plants.

Rubra. Moss rooted layers. 5/7 leaves. (Limited quantity) shipped F.O.B. Louisiana. 10 plants **\$8.00**; 100 plants, **\$75.00**.

* These three varieties also available from Louisiana.



**NEPHTHYTIS
GREEN
GOLD**



**PEPEROMIA
EMERALD
RIPPLE**



**PHILODENDRON
PANDURIFORME**



**POTHOS
WILCOXI**

Ball Decorative Foliage Plants

MARANTA KERCHOVEANA

Flat oval leaves with chocolate blotches. Prefers warm, humid greenhouse.

	Per 100	Per 1000
Rooted cuttings with 3/7 leaves.....	\$ 9.00	\$ 80.00
2 1/4 inch with 4/8 leaves.....	16.00	150.00

Available throughout the year; minimum order 100 plants.

NEANTHE BELLA PALM

(Chamaedorea elegans)

Excellent as a small dish garden plant or, in larger sizes, for specimen work.

	Per 100	Per 1000
Seedlings with 3/5 leaves.....	—	\$ 40.00
Transplants with 6/10 leaves.....	\$10.00	85.00
2 1/4 inch with 4/6 leaves.....	16.00	150.00

Available Oct. through spring. Minimum order on seedlings, 500; other sizes 100.

GROW NEANTHE BELLA PALMS FROM SEED!

Seed should be sown in a loose, peaty soil mixture, and seed bed temperature maintained at 70°. Germination slow and uneven—allow 5 to 10 months. Use only freshly harvested seed, available September through December. 1 lb. contains approximately 2500 seeds.

1 oz., \$1.50; 4 ozs., \$5.00; 1 lb., \$15.00.

Postpaid

PEPEROMIA

Excellent miniature plant for dish gardens. Should **NOT** be overwatered.

	Per 100	Per 1000
Obtusifolia.		
Rooted cuttings with 3/5 leaves.....	\$ 7.00	\$ 60.00
2 1/4 inch with 5/8 leaves.....	11.00	100.00
Variegated.		
Rooted cuttings with 3/5 leaves.....	11.00	100.00
2 1/4 inch with 5/8 leaves.....	16.00	150.00

Minimum order for above two varieties, 100 plants. Available throughout the year.

***Emerald Ripple** (See photo). An interesting, easily grown newcomer to the Peperomia field.

2 1/4 inch	35.00	—
3 inch	50.00	—

Available throughout the year. Minimum order, 25 plants.

*Shipped F.O.B. Ohio, only.

NEPHTHYTIS

(Syngonium podophyllum)

Arrow-shaped leaves. Excellent for dish gardens.

	Per 100	Per 1000
Emerald Gem. Green, crinkled leaf		
Rooted cuttings with 3/5 leaves.....	\$ 7.00	\$ 60.00
2 1/4 inch with 4/7 leaves.....	11.00	100.00

Green Gold. Leaves show whitish centers.

Rooted cuttings with 3/5 leaves.....	\$ 7.00	\$ 60.00
2 1/4 inch with 4/7 leaves.....	16.00	150.00

PHILODENDRON

Probably our most widely used decorative foliage plant group. Prefers acid peat, light shade and high atmospheric moisture.

Cordatum. Our stock comes from a leading specialist and we know of no better quality available anywhere at any price.

Propagating eyes. \$12.50 per 1000 eyes; 1000 eye minimum order.

Rooted Cuttings with 2 leaves. These are in no sense "culls"; they are graded out as smaller plants. An excellent buy. \$40.00 per 1000 (plus packing charge); 500 minimum order.

Rooted cuttings with 3/5 leaves. Excellent, uniformly graded plants. 500 cuttings, \$30.00; \$55.00 per 1000 (plus packing charge). Minimum order 500.

2 1/4 inch pot, 2 plants per pot. \$13.50 per 100; \$125.00 per 1000, (plus packing charge). Minimum order 100.

All Cordatum listings are available throughout the year.

Dubium. Large, deeply lobed leaves. 3 inch size, 10 plants, \$4.50; 100 plants, \$42.50; Minimum order, 10 plants.

Hastatum. Arrow shaped glossy green leaves. Fast growing. 3 inch plants, 10 plants \$4.50; 100 plants, \$42.50. Available throughout the year. Minimum order 10 plants.

Imbe. Similar to Hastatum except reddish under side of leaves. 4 inch, with 4/7 leaves, 10 plants, \$8.00. Available throughout the year. Minimum order, 10 plants.

Mandianum. Similar to Hastatum except reddish-brown leaves. 3 inch plants, \$5.00 per 10 plants; \$45.00 per 100 plants. Available spring and fall. Minimum order, 10 plants.

Panduriforme. Called "Fiddle Leaf Plant" because of 3 lobed leaves.

	Per 10	Per 100	Per 1000
Rooted Cuttings	—	\$13.50	\$110.00
Rooted Cuttings (large)	—	19.50	160.00
3 Inch plants	\$4.50	42.50	—

Available spring and fall. Minimum order on cuttings, 100; minimum order on 3 inch plants, 10.

Pertusum. Swiss Cheese Plant. Large, rounded, perforated and cut leaf.

4 Inch with 4/6 leaves.....	Per 10 \$8.00
------------------------------------	---------------

Available throughout the year.

Minimum order, 10.

Foliage Plants —Continued

POTHOS

Grows best in temperatures above 70° in not too wet soil. Climbs like Philodendron Cordatum.

Per 100 Per 1000

Marble Queen. Variegated snowy-white and green leaves.

Propagating eyes. Minimum order, 500 eyes. Available throughout the year

\$ 26.00

Rooted Cuttings with 3/5 leaves. Minimum order 100 cuttings, available throughout the year....

100.00

2 1/4 Inch with 4/6 leaves. Minimum order 100 plants. Available throughout the year.....

200.00

Wilcoxii. A highly variegated sport of Pothos Aureus. Green leaves marked with yellow.

Propagating eyes. Minimum order 1000 eyes. Available throughout the year

12.50

Rooted Cuttings with 3/5 leaves. Minimum order, 100 cuttings. Available throughout the year....

60.00

2 1/4 Inch with 4/6 leaves. Minimum order, 100 plants. Available throughout the year.....

100.00

SCHEFFLERA ACTIONOPHYLLA

Excellent in small sizes for dish gardens. Also excellent in larger specimen work. Must be kept on dry side and warm.

Per 100 Per 1000

Seedlings\$5.00 \$40.00
Transplants, medium sized..... 7.50 50.00
Transplants, large sized..... 8.50 65.00

Seedlings are available only during midwinter; medium transplants available October through July; large transplants available throughout the year. Minimum order of each size, 100 plants.



SANSEVERIA
HAHNII

SANSEVERIA

Hahnii. An attractive rosette type. Following are rooted cuttings.

Per 100 Per 1000

Small Rosettes\$ 7.00 \$ 60.00
Medium Rosettes 10.00 90.00
Large Rosettes 14.00 120.00

Laurentii. Green with yellow bands. All sizes below are listed in inches of height and carry 3 to 5 leaves.

4/6 inches 13.50 125.00
6/8 inches 13.50 125.00
8/12 inches 13.50 125.00
12/15 inches 14.00 130.00
15/18 inches 14.00 130.00
18/24 inches 14.00 130.00

Zeylanica. Green leaves. All sizes listed below are in inches of height and all sizes carry 3 to 5 leaves.

4/6 inches 8.00 70.00
6/8 inches 8.00 70.00
8/12 inches 8.00 70.00
12/15 inches 8.00 70.00
15/18 inches 8.00 70.00

All above Sansevierias are available throughout the year. Minimum order 100 plants per size and variety.

BALL SPECIAL FOLIAGE PLANT COLLECTION

For retail growers who need a collection of the important foliage plants, we offer this SPECIAL FOLIAGE PLANT COLLECTION. Notice all the plants offered are in smaller sizes which means less transportation cost to you. You can either pot them and sell them almost immediately as small house plants, or you can grow them on to larger sizes and more profit. Plants used for these collections are exactly the same grade and quality as used for our regular bulk orders. We reserve the right to make substitutions of equal or better sizes and varieties in the event of short supplies. Available throughout the year.



PHILODENDRON
CORDATUM



PEPEROMIA
OBTUSIFOLIA

25	Chinese Evergreen	rooted cuttings, 3/5 inches.....	3/6 leaves
15	Dracaena Sanderiana	rooted cuttings.....	5/10 leaves
25	Maranta Kerchoveana	rooted cuttings.....	3/7 leaves
25	Nephtytis Emerald Gem	rooted cuttings.....	3/5 leaves
25	Nephtytis Green Gold	rooted cuttings.....	3/5 leaves
25	Peperomia variegated	rooted cuttings.....	3/5 leaves
25	Peperomia Obtusifolia	rooted cuttings.....	3/5 leaves
100	Philodendron Cordatum	rooted cuttings.....	3/5 leaves
25	Pilea Cadieri (Aluminum Plant)	rooted cuttings.....	4/8 leaves
25	Pothos Wilcoxii	rooted cuttings.....	3/5 leaves
25	Sansevieria Laurentii,	4/6 inches.....	3/5 leaves

SPECIAL FOLIAGE PLANT COLLECTION (340 plants) for \$28.75

Shipped F.O.B. Florida. Shipping wt. 18 lbs. (approx. Slightly heavier during winter)

Don't forget to specify on your order when you want your shipment repeated.

Miscellaneous Plants

ACHYRANTHES

The popular decorative foliage, outdoor bedding plant. Delivery September to January. Shipped F.O.B. Indiana or Ohio. Minimum 100 of a variety.

	Per 100	Per 1000
Dark Red (Burgundy). Vigorous growing.		
Rooted Cuttings	\$4.50	\$42.50
2 1/4-inch	8.00	77.50
Green and Yellow Variegated . Vigorous growing.		
Rooted Cuttings	4.50	42.50
2 1/4-inch	8.00	77.50
Brilliant . Dwarf, small-leaved, bright red.		
Rooted Cuttings	5.00	50.00
2 1/4-inch	10.00	97.50

AGERATUM

We offer rooted cuttings and 2 1/4's of the following well-known cutting propagated varieties. Available September to March. Shipped F.O.B. Illinois, Indiana, Ohio, Pennsylvania, and Massachusetts.

	Rooted Cuttings	
	Per 100	Per 1000
Blue Boy	\$3.00	\$26.00
Devon Blue . Bushy, slightly taller than Imp.		
Riverside	3.50	30.00
Imp. Riverside . Dwarf blue	3.00	26.00
New Masterpiece . Blue	3.00	26.00
New Pink . Dwarf	3.50	30.00
Purple Beauty . Tall	3.00	26.00
White . Dwarf	3.50	30.00

2 1/4 inch plants of the above varieties:
\$10.00 per 100; \$90.00 per 1000; 500 plants at 1000 rate. Minimum 100 of a variety.

ASPARAGUS

Good heavy 2 1/4-inch plants of **Sprengeri** and **Plumosus** shipped from Indiana June through fall. \$10.00 per 100; \$90.00 per 1000. 250 or more at the thousand rate.

AZALEAS

We carry a complete line of both Dormant and lining-out stock Azaleas. Space doesn't permit a complete listing from all our sources. Our list includes dormant plants shipped from West Virginia, California, Oregon, Michigan, Virginia, and New Jersey. We offer a complete list of growing-on liners from New Jersey, New York, and Alabama.

Our Azaleas are all grown by the country's leading specialists and our prices are competitive. We will be happy to send you our complete Azalea list or quote on your requirements.

BEGONIAS

See page 116.

BELOPERONE

Guttata. The popular Shrimp Plant. We offer 2 1/4-inch plants shipped in the fall, F.O.B. Ohio. \$10.00 per 100.

BLEEDING HEART

(Dicentra Spectabilis)

We offer field grown clumps shipped F.O.B. New York or Pennsylvania. Minimum order 25 clumps. Available October 15 to April 1.

3-5 eyes, 35c ea. 5-8 eyes, 45c ea. 8 eyes and up, 55c ea.

BROWALLIA

Speciosa Major. The attractive violet-blue flowered pot plant. 2 1/4-inch plants, delivery in November. F.O.B. Ohio. \$10.00 per 100.

CACTI

Write for prices on Cacti and Succulents.

CALCEOLARIA

We offer plants of both the seedling and cutting propagated types. We suggest potting either cuttings or 2 1/4's directly into 5 inch pots. Keep plants on dry side and give cheesecloth shade during spring and summer. Temperature should be 48° to 50°. All plants shipped F.O.B. New York. 2 1/4's available September to December.

VARIETIES GROWN FROM SEED for EASTER FLOWERING:

2 1/4 inch plants \$18.00 per 100.
Multiflora Nana. Excellent strain.
Multiflora Nana, Gilbert's Strain.
Triumph. Shades of yellow, orange and red.
Berlin Giants (NEW). Mixed colors, large flowers, approximately 2 inches. From originator's seed. Minimum order 50 plants. \$20.00 per 100.
Werles Gem (NEW). Extra dwarf red shades. 6 inch blooms 3 weeks earlier than Multiflora Nana. From originator's seed. Minimum order 50 plants. \$20.00 per 100.

VARIETIES GROWN FROM CUTTINGS FOR MOTHER'S DAY FLOWERING:

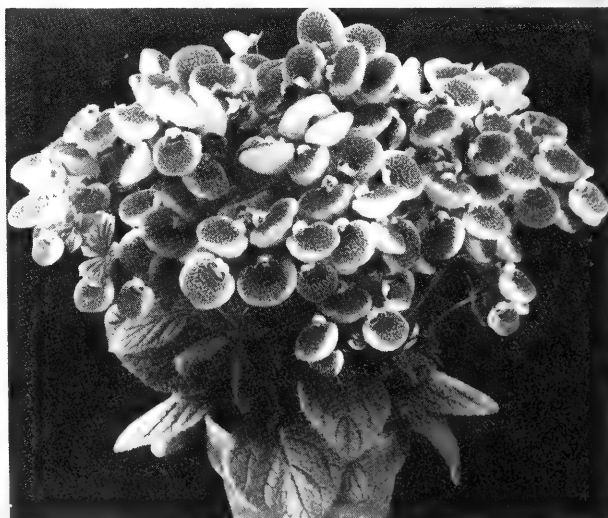
2 1/4 inch plants \$28.00 per 100.
Greater New York.
Pure Flame. Red.
Stewart II. Yellow.
Imp. Perfection. Yellow, orange, and amber.
Golden Talisman. Amber.
Cherry Queen. Pink.
Mary Louise. Red.
Pink Perfection. Pink.
Rosacker's Brilliant. Red.
Suzanne. Yellow.

ROOTED CUTTINGS OF CUTTING-PROPAGATED VARIETIES:

Available July thru Oct. \$16.00 per 100; \$150.00 per 1000.
Greater New York
Pure Flame
Golden Talisman
Mary Louise
Pink Perfection
Suzanne

SPECIAL CALCEOLARIA ASSORTMENT

Special Calceolaria assortment for the retail grower who wants a collection of all the principal colors available in both the cutting and seedling Calceolarias. All 2 1/4's: 50 plants of the Mother's Day cutting varieties and 50 plants of the seedling varieties. Available September to December. Shipped F.O.B. New York: **Assortment** (100 2 1/4 inch plants) \$20.00.



CALCEOLARIA MULTIFLORA NANA
One of the best varieties for Easter Flowering.

CARNATIONS

See page 97.

CINERARIA

Order our 2 inch banded plants for shipment in October or November for Easter plants finished in 5 inch pots. 48° to 50° is ideal for Cinerarias.

Siter's Rainbow Strain. Large heads, medium sized white-eyed flowers.

Cremers Prize Strain. Extra large heads of small flowers. Small leaves.

Multiflora Nana Gold Center. Small flowers with yellow anthers. Mostly solid colors.

Prices above 3 varieties, each: \$12.00 per 100; \$100.00 per 1000.

Siter's Hybrids. Originator's strain of this fine variety. \$15.00 per 100; \$120.00 per 1000.

Cinerarias shipped in our special Ball-Pak, F.O.B. Ohio. Minimum order 100 plants, 25 of a variety, in multiples of 50 plants.

COLEUS

Coleus require a minimum of 60° and shade during spring and summer. We offer **rooted cuttings** of the following varieties and mixture.

Butterfly. Butterfly leaf with red streak and notched edge.

Brilliancy. Dark red with gold border.

Christmas Gem. Green leaf mixed with red.

Hollywood Red. Red with gold edging. Notched leaf. One of the finest bedding varieties. Dwarf and low branching.

Golden Bedder. Pure yellow.

Gold Bound. Red with gold edge.

Prices above 6 varieties each: **Rooted cuttings**, \$4.50 per 100; \$40.00 per 1000. Shipped F.O.B. Indiana.

Assorted Bright Colors. Rooted Cuttings, \$4.00 per 100; \$35.00 per 1000. Shipped F.O.B. Illinois, Indiana, Pennsylvania, Ohio and Mass.

CYCLAMEN

We supply excellent plants from specialist producers. Depending on your space requirements, buy 2 1/4-inch in late spring, 3-inch during summer or 4-inch in August or September. Cyclamen flower when they become pot-bound. A final shift in mid-August will flower in November or December; a final shift in early September will flower for Christmas, etc. Pot in a mixture of 1/4 non-acid peat, 1/4 leaf mold and 1/2 soil. Mite are best controlled by Parathion wettable powder plus spreader and/or sodium selenate. Our plants are sold only in a well-balanced mixture of the popular varieties and colors. Shipped F.O.B. Illinois, Michigan, New York and Wisconsin. 250 plants of 2-inch and 3-inch sizes at the thousand rate.

2 1/4 inch plants available April to June. \$22.00 per 100; \$200.00 per 1000. Minimum order, 100 plants.

3 inch plants available June and July. \$36.00 per 100; \$350.00 per 1000. Minimum order, 50 plants.

4 inch plants supplied during August and September. \$65.00 per 100. Minimum order, 25 plants.

DRACAENA INDIVISA

Delivery F.O.B. Wisconsin, Ohio, and Massachusetts, September thru March. 250 or more at the 1000 price.

	Per 100	Per 1000
2 1/4-inch	\$11.00	\$100.00
3-inch	20.00	195.00

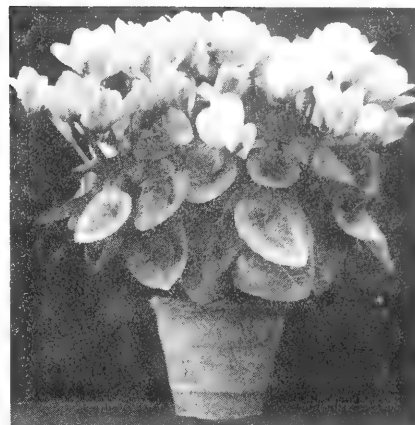
DUSTY MILLER

We offer the cutting-propagated fern-leaved variety. Shipped F.O.B. Indiana and Ohio.

Rooted Cuttings: Available September to January; \$5.00 per 100; \$47.50 per 1000.

2 1/4 inch: Available October to February. \$11.00 per 100; 100.00 per 1000.

Cyclamen growing is a specialized job. Special conditions of moisture, temperature, and soil must be closely watched or the 16 to 18 month's time required to mature a plant will be wasted.



FERNS

We carry a very complete line of fern plants, both in flats and from pots. Write us if you are interested in specific varieties. The special assortment listed below contains the most popular Pteris varieties and is our biggest seller.

Special Pteris Fern Assortment. Designed to fill the need of smaller growers who need ferns but not in great quantity. Our flat is 14 x 20 inches and contains between 120 and 170 plants. Delivery F.O.B. New Jersey from June through September. \$7.50 per flat. 5% discount on order of 10 flats or more.

FOLIAGE PLANTS

See Page 117.

FUCHSIA

	Rooted Cuttings		2 1/4-in. Plants	
	Per 100	Per 1000	Per 100	Per 1000
Hollydale. Double. Rose petal with violet bell.....	\$7.00	\$65.00	\$13.00	\$125.00
Winston Churchill. Double rose petal with violet bell.....	7.00	65.00	13.00	125.00
Little Beauty. Double. Red petals with purple bell. Dwarf....	7.00	65.00	13.00	125.00
Bagdad. Double	6.50	60.00	12.00	115.00
Lord Byron. Double dwarf red	6.50	60.00	.....	.....
Black Prince. Tall pink.	6.50	60.00	12.00	115.00
Pride of Orion. Tall double red with white bell	6.50	60.00	12.00	115.00
Giant Pink. Double tall pink	6.50	60.00	12.00	115.00

500 of above cuttings or 2 1/4-inch plants billed at the 1000 rate. Minimum order 100 per variety. Shipped F.O.B. Pennsylvania, Indiana and Mass.

FUNKIA

Variegata. An attractive pot plant with silvery-white variegated leaves. Lilac, bell-shaped flowers. Field-grown plants shipped from Ohio during the fall. \$25.00 per 100.

GERANIUMS

See page 114.

GARDENIA

Vetchi. The variety commonly grown as a pot plant. 2 1/4-inch plants for growing on. Shipped in the fall from Ohio. \$20.00 per 100.

MISCELLANEOUS PLANTS, Continued

GLOXINIAS

Grow Gloxinias From Ball Seedlings!

Modern seedling strains of Gloxinias are fast gaining favor as a quick pot plant crop. The newer seedling varieties feature brilliant colors and small, leathery leaves that stand packing and shipping well.

A few cultural pointers:

1. Pot seedlings immediately upon arrival directly into 5 or 6 inch pots.
2. Use a sterilized mixture of 1/2 peat moss or leaf mold and 1/2 sandy loam.
3. Water frequently and lightly. Never allow to completely dry out. Never wet foliage. Keep atmospheric humidity high.
4. Temperatures of 64 to 68 degrees are ideal the year round.
5. Shade with cheese cloth during bright summer days.
6. Feed with a weak solution of ammonium sulfate twice a month.

BALL GLOXINIA SEEDLINGS WILL FLOWER IN 3 TO 4 MONTHS FROM PLANTING. THEY CAN BE GROWN THE YEAR ROUND. TRY THEM!

SPECIAL ALL COLOR MIXTURE

Our **Special All Color Mixture** is made up specially for the smaller grower who needs a hundred or more Gloxinias and doesn't want to bother ordering by individual varieties. This mixture consists of nearly 1/2 solid red varieties with lesser amounts of blue, red-and-white combinations, solid whites and a few of the rarer speckled color types and the other unusual hybrids. This is a formula mixture containing only first class varieties. **\$20.00 per 100, \$180.00 per 1000.** Minimum order, 100 plants. 250 or more plants billed at the thousand rate. Shipped F.O.B. Florida in 2 inch plant bands packed in our special Ball-Pak. Available for immediate shipment throughout the year.

SEPARATE COLORS

We also offer the following list of individual varieties. **We require 30 days notice for shipment on separate varieties. These are all new seedling strains—don't confuse them with varieties propagated and sold as tubers.**

PANZER SCARLET

Probably the most famous and widely used strain of seedling Gloxinias on the market. Deep velvety red. Excellent. **\$20.00 per 100, \$180.00 per 1000.** Minimum order 100 plants, 25 per variety. Please order in multiples of 50.

Red Velvet. Finest solid red.

Royal Velvet. Solid deep purple.

Cherry Belle. Cherry red center with white border.

Pink Pearl. Rose with creamy white center. Heavy producer on compact plants. Requires less light than others.

Red and White Velvet. Red with white center.

Purple Cloud. Large white centered flowers with purple edges. Strong grower.

Red and Blue Speckled Types. Unusually showy selection. Flowers in 3 months or less from our 2-inch banded plants. Plants available during fall, winter and spring only.

Colossal Mixture. Mixture of extra large flowered types. Large leaves. Flowers 3 months or less from our 2-inch banded plants. Plants available during fall, winter and spring only.

Maroon Beauty. Rich velvety maroon red. Strong grower.

Snowbird. Giant pure white flowers.

Fuchsia Queen. Reddish purple or wine color with some speckled and white types.

Prices above 11, each: \$20.00 per 100, \$180.00 per 1000. Minimum order 100 plants, 25 of a variety. Please order in multiples of 50.

All our Gloxinia seedlings are grown in bands and shipped in Ball-Pak.



GYNURA

Aurantiaca, or Velvet Plant. A very attractive novelty pot plant found native in Java. Grows 1 to 2 ft. high in pots. Heavy succulent leaves covered with violet or purple hairs. Clusters of flowers are yellow or orange. A real novelty. 2 1/4-inch plants shipped from Ohio during the fall. **\$15.00 per 100.**

GYPSOPHILA

Bristol Fairy. The popular perennial "Gyp." We offer 2 1/4-inch plants for spring delivery from Ohio. **\$22.00 per 100 or \$200.00 per 1000.** One-year field grown stock, October delivery from Ohio. **\$35.00 per 100.**

HYDRANGEAS

See page 115.

LANTANA

We offer Lantana 2 1/4's in the following varieties for shipment October to May.

Craigi. Deep red shading to yellow.

Delicatissima. Yellow shading to pink.

Dwarf Buckeye. Red shading to yellow.

Golden King. Lemon yellow.

Jacob Schultz. Red.

Lady Olivia. Yellow shading to pink.

La Pleur d'Or. Burnt orange.

Mary Kathryn. Light lavender.

Michael Schmidt. Red shading to yellow.

Radiation. Red, orange and yellow center.

Sunset. Yellow and red.

Sensation. Pink shading to yellow.

Snow White. White.

Southern. Yellow shading to buff. Dwarf.

Tethys. Cream shading to canary yellow.

Prices on above varieties: \$11.00 per 100, \$100.00 per 1000. Minimum order, 100 plants. Shipped F.O.B. Pennsylvania, Ohio, and West Virginia where available.

MANETTI

See page 112.

PACHYSANDRA

We offer the new **Variiegated** form that makes an excellent dish garden subject. 2 1/4-inch plants, **\$15.00 per 100, \$125.00 per 1000.** Fall delivery only. F.O.B. Virginia.

PANSY

All our Pansy plants are grown by a specialist from originator's seed. Delivery late September through early November.

Steele's Jumbo Mixture. **\$13.50 per 1000.**

Steele's "400" Super Swiss Mixed. **\$13.50 per 1000.**

Swiss Roggli Giants. **\$16.50 per 1000.**

Minimum order, 1000 of a variety. Shipped F.O.B. Ohio.

PELARGONIUM

See page 114.

PERENNIALS

Write for prices on our complete list of Perennials.

ALL-DOUBLE PETUNIAS

We offer the following varieties available in 2 inch plant bands and shipped in Ball-Pak. Available December through April.

Gaiety. Dwarf blotched rose and white.

Allegro. Bright salmon.

Sonata. Pure white.

Nocturne. Purple.

Rose of Canada. Bright medium rose.

Ball All-Double Mixture

Assorted varieties.

Prices above, each: **\$12.00** per 100; **\$100.00** per 1000. 250 plants billed at 1000 price. Minimum order, 100 plants, 25 of a variety. Please order in multiples of 50. Shipped F.O.B. Ohio.

HARDY PHLOX

World Peace. White.

Bright Eyes. Red.

Lillian. Salmon pink.

Africa. Carmine red.

Daily Sketch. Pink.

Pinkette. Delicate pink.

Chieftain. Deep crimson

A. Prichard. Pale blue.

Graf Zeppelin. White with pink eye.

Border Queen. Pink.

E. Forester. Deep pink.



2 1/4-inch plants of varieties at left ready May 1 priced at **\$8.50** per 100; **\$80.00** per 1000.

Field grown clumps available in the fall priced at **\$13.00** per 100; **\$120.00** per 1000. Shipped F.O.B. Ohio.

POINSETTIAS

We offer stock plants for the specialist grower and 2 1/4-inch plants for planting August through October. Stock plants should be planted immediately upon receipt in large containers to allow ample room for root development. For instance, a No. 1 or Jumbo stock plant should be planted in a container of approximately half-bushel capacity. Do not crowd stock plants; allow full sunlight and plenty of air circulation. Seventy or 80° temperatures are right for getting stock plants started; 60 to 65° later when plants are growing. Water every two weeks with a solution of 1 oz. of ammonium sulfate to 2 1/2 gallons of water. Cuttings should be taken from June on.

Pot 2 1/4-inch plants directly into their flowering size pans upon receipt. The last pinch should be not later than the end of August. Be sure to water thoroughly when planting 2 1/4's in large sized pots. New York State Flower Grower Bulletins from Cornell University have excellent articles on the newest information on forcing Poinsettias.

2 1/4-INCH PLANTS

For the convenience of our customers who do not have facilities for producing their own Poinsettia cuttings, we offer the following varieties in 2 1/4-inch plants. These plants are of excellent quality produced by specialist growers.

	Per 100	Per 1000
Barbara Ecke Supreme	\$22.50	\$210.00
Improved Albert Ecke	21.00	200.00
Indianapolis Red	24.00	220.00
Ecke White	21.00	190.00
Ecke Pink	21.00	190.00
Ruth Ecke	17.00	160.00
Oak Leaf	17.00	160.00

Available August through October. Shipped F.O.B. Illinois, Michigan, Indiana, Pennsylvania, and New York, where available. Minimum order 100 plants. 250 or more plants of a variety billed at 1000 rate.

STOCK PLANTS

New Ecke Pink. Long bracts similar to Oak Leaf. Only No. 3 size available. Limit 5 per customer. **\$1.20** each.

Barbara Ecke Supreme. Most popular variety. Sold under patent restrictions.

Indianapolis Red. Particularly fine for southern growers.

Ecke White.

Prices above 3, per 100 plants:

Super Jumbo	Jumbo	No. 1	No. 2	No. 3	No. 4
\$180.00	\$150.00	\$120.00	\$90.00	\$60.00	\$40.00

Improved Albert Ecke

Pink

Prices above 2, per 100 plants:

Super Jumbo	Jumbo	No. 1	No. 2	No. 3	No. 4
\$150.00	\$125.00	\$100.00	\$90.00	\$60.00	\$35.00

Mrs. Paul Ecke

Double Heinriette Ecke

Oak Leaf

Ruth Ecke
St. Louis

Prices above 5, per 100:

Super Jumbo	Jumbo	No. 1	No. 2	No. 3	No. 4
\$135.00	\$110.00	\$85.00	\$65.00	\$45.00	\$25.00

The above prices are F.O.B. eastern points of distribution, c/o Railway Express. All No. 4 plants are shipped F.O.B. Encinitas, California. We will add 10% packing charge on all orders received after January 1. All orders must be final by February 1.

The following table shows an approximate number of cuttings that may be expected from various sizes of stock plants. Allow 1/3 more plants for the variety Indianapolis Red.

Super Jumbo plants should produce 70 to 90 cuttings.

Jumbo plants should produce 50 to 70 cuttings.

No. 1 plants should produce 40 to 50 cuttings.

No. 2 plants should produce 10 to 25 cuttings.

No. 3 plants should produce 10 to 25 cuttings.

MISCELLANEOUS PLANTS, Continued



PRIMULA OBCONICA

PRIMULA

MALACOIDES. Our plants are 2¼-inch size shipped September to January.

Glory of Riverside Imp. Salmon rose.

New Baby. Dark lavender.

New Giant. Pink with yellow center.

New Red. Bright red. Doesn't turn dark.

\$12.00 per 100; \$100.00 per 1000. Minimum order 100 plants in multiples of 50, 25 plants of a variety. Shipped F.O.B. Illinois.

OBCONICA. 2¼-inch plants shipped from June to December.

***Fasbender's Red.** Large deep red.

***Mohnstein's Red.** Popular deep red.

***Mueller's Berlin Rose.** Soft rose.

***Friesdorfer.** Salmon.

***Alba.** White.

***Sky Blue.**

\$12.00 per 100; \$100.00 per 1000. Minimum order 100 plants in multiples of 50; 25 of a variety. Shipped F.O.B. New Jersey and Ohio. Those starred (*) are available from Texas September 1 and shipped in Jiffy-Pots.

Primula Veris. The beautiful hardy primrose. 2¼-inch plants in assorted colors shipped during the fall from Ohio. \$15.00 per 100.

ROSES

See page 108.

SAINTPAULIA (African Violets)

One of our most popular house plants. We offer 2¼-inch plants of the following varieties. Available during the spring and fall. F.O.B. Ohio.

	Per 100
Double Neptune. Blue.....	\$25.00
Double Pink Cushion.	75.00
Double White Cushion.	75.00
Gorgeous Blue Wonder. Light blue and white.....	35.00
Midnight Lady. Double blue.....	25.00
Painted Girl. Single orchid and white.....	35.00
Pink Cheer.	25.00
Purple Knight.	25.00
Queen Cushion. Double orchid.....	25.00
Red King.	25.00
Red Man. Single.....	35.00
Snow Prince. White.....	25.00

SNAPDRAGONS

Have trouble germinating Snap seed during the hot summer months? Buy our 2-inch banded plants. Our plants are produced by specialists from Ball seed. Our Ball-Pak method of shipping assures plants' arriving in tip-top shape.

For an early January crop grown on raised beds at 50°, plant 2-inch banded plants October 5 for an unpinched crop or September 5 for a pinched crop. For an early March crop plant 2-inch banded plants November 10 for an unpinched crop, or October 10 for a pinched crop. For early May flowering, plant 2-inch banded plants February 1 for an unpinched crop or January 1st for a pinched crop. All the following varieties except Hercules and Golden Spike we recommend for flowering from January on. Hercules and Golden Spike are best flowered from March on. Please specify whether you want your plants pinched or unpinched.

Bridesmaid. Medium rose.

Flower Girl. Medium pink.

Pink Ice. Medium rose, white lip.

Navajo. Best red.

War Admiral. Good early yellow.

Gallant Fox. Deep orange bronze.

Twenty Grand. Ivory white.

Libby. Dark rose.

Christina. Medium light pink.

Hercules. Medium pink.

Golden Spike. Golden yellow.

Snowman. Pure white.

Lavender Lady. Deep rosy lavender.

Shipped F.O.B. Illinois, Ohio or New York. Minimum order, 100 plants, 25 of a variety. Please order in multiples of 50 plants. 250 plants billed at the thousand rate. Available August through March.

Prices above Snapdragon plants, each: \$8.00 per 100; \$65.00 per 1000.

VERBENA

Strong Rooted Cuttings

	Per 100	Per 1000
Candystick. Red and white.....	\$4.50	\$40.00
Schlosser's Pride. Dark red.....	3.50	30.00
True Beauty of Oxford. Cerise.....	3.50	30.00
True Beauty of Oxford, Pink.....	3.50	30.00
True Beauty of Oxford. Lavender.....	3.50	30.00
True Beauty of Oxford. Scarlet.....	3.50	30.00
True Mayflower. Light pink.....	3.50	30.00
Royal Purple. Purple with white eye.....	3.50	30.00
Pure White.	3.50	30.00

Strong 2¼-Inch on all above Varieties
\$8.00 per 100, \$75.00 per 1000.

October to March delivery, F.O.B. Illinois. Orders for 500 or more at the 1000 rate.

VINCA VINES

Very Highly Variegated

Strong 2¼-Inch, \$11.00 per 100; \$100.00 per 1000. November to March delivery.

Rooted Cuttings, \$4.25 per 100; \$40.00 per 1000. October to February delivery.

Orders for 500 or more at 1000 rate.

Shipped from Illinois, Indiana, and Massachusetts.



Florist Supplies

LINDIG SOIL SHREDDERS

Shreds faster and more uniformly all soils, peat, manure, compost, leaf mold, etc.

Model B

Without Power

With
3/4 H.P.
Electric
Motor

With
1 H.P.
Electric
Motor

Model 1B-4 , Capacity per hour, 8 yds.....	\$135.00	\$203.00	.....
Model 1B-6 , Capacity 8 yds. per hour. Extra fine shredder	145.00	213.00	.....
Model 2B-6 , Capacity 14 yds. per hour.....	165.00	233.00	\$250.00
Model 2B-8 , Capacity 14 yds. per hour. extra fine shredder	175.00		260.00

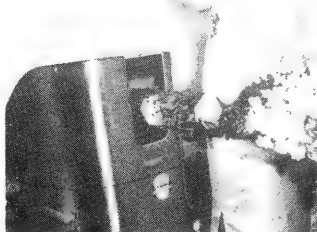
Model JR-B

Model JR-B without power. Cap. 3 yds. per hr.....	\$105.00
Model JR-B with 1/3 h.p. motor.....	148.00
Model JR-8 with 1/2 h.p. motor.....	155.00
Motors complete with switch and six feet of cord.	
With gas engines	155.00

All prices F.O.B., St. Paul, Minn.

MIRACLEAN STEM STRIPPER

MIRACLEAN STEM STRIPPER handles an entire bunch of flowers at a time, quickly and efficiently. It cleans stems in seconds, saving valuable time from each working day. **\$287.70.** Stand **\$28.50;** Blade, **\$12.50** F.O.B. factory.



STEAM-FLO SOIL STERILIZER

Here's a machine that will sterilize a bed 5 x 50 ft. in 2 hours . . . maintaining from 8 to 10 lbs. pressure, burning from 4 to 4 1/2 gallons of #1 fuel oil per hour AND you do not have to handle the soil.

Completely equipped including automatic water feed and low water cut off. Not including tires (uses 16 in. rim tires). Price: **\$685.00.** 25 ft. Steam Hose 1 1/4 in. with 2 female connectors. Price **\$34.50.**

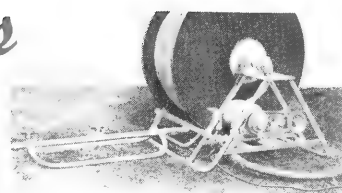
Aluminum tubing 1.9 in. outside diameter, flanged and drilled in 19 ft. lengths. Price: **42c** per ft.

Weston Thermometer, for soil heat testing, 2 in. head—8 in. stem. Price: **\$7.50** each. F.O.B. Cincinnati, Ohio.



The Rough Bros. Steam generator — about 15 HP, capable of steaming 250 sq. ft. of bench area in 2-3 hours.

HOSEBOYE



Watering is one of your most time-consuming jobs—why not use a HOSEBOYE? From our own experience, we find it does a better job of watering, and at a small fraction of the hand labor costs.

HOSEBOYE is an automatic, economical method of watering. You need only place this electric powered hose reel and sprinkler in position—turn it on—and go about your other jobs.

HOSEBOYE—complete with 150'-3/4" inside diameter plastic hose, sled and 4 special Veejet Nozzles for Universal Application Assembly B; **\$395.00.** F.O.B. Cincinnati, Ohio.

WOOD POT LABELS

Finest quality made out of clear white pine. F.O.B. shipping point.

Size	Plain Per 1000	Painted Per 1000
4 x 5/8 inch.....	\$3.00	\$3.55
5 x 5/8 inch.....	3.20	3.80
6 x 5/8 inch.....	3.50	4.30
8 x 5/8 inch.....	5.15	6.35
10 x 5/8 inch.....	6.15	7.45
12 x 5/8 inch.....	7.15	8.75

Copper Wired

3 1/2 x 5/8 inch..... **3.55** **4.35**
The 4, 5, and 6 inch pot labels are packed in cartons of 1000 each; and the 8, 10, and 12 inch in cartons of 500 each. Prices of printed labels on request.

WIRE MESH

Easier and more economical than stringing bench wire.

12 1/2 Gauge Galvanized

Spacing Stay Line	Width	Roll Length	Approx. Weight	Price
8 x 6 in.....	42 in.	150 ft.	52 lbs.	\$12.50
8 x 7 in.....	35 in.	200 ft.	55 lbs.	13.25
	42 in.	200 ft.	64 lbs.	15.40
8 x 8 in.....	24 in.	200 ft.	38 lbs.	9.15
	32 in.	200 ft.	50 lbs.	12.00
	40 in.	200 ft.	60 lbs.	15.00
	48 in.	200 ft.	70 lbs.	16.85
8 x 8 1/2 in.....	34 in.	200 ft.	55 lbs.	13.25

F.O.B. California. Orders accepted on basis of price in effect at time of shipment.



Wire mesh supports. If mesh is of correct size, it can be unrolled onto bench and used for a planting marker—as it was here. Then, as cuttings start pulling up, the single layer of mesh is gradually raised —kept about 6 inches below the plant tops all the way along.

Florist Supplies

KAPCO

99½% Soluble Fertilizers

The most efficient, economical way to feed your plants.

15-30-15 with Chelated Concentrate. For general use—floral and vegetable crops, fruits, shrubs.

	Per lb.		Per lb.
25-299 lbs.	\$0.26	1000-1999 lbs.	\$0.21
300-999 lbs. ....	.22	2000 lbs. up .....	.20

20-20-20. Recommended as a foliar feed on lawns, turf, and many crops. It is also recommended as a root feed the same as our 15-30-15.

	Per lb.		Per lb.
25-299 lbs.	\$0.26	1000-1999 lbs.	\$0.21
300-999 lbs. ....	.22	2000 lbs. up .....	.20

30-10-10 with Chelated Concentrate. Recommended for feeding plants with high nitrogen requirements such as lawns, Azaleas, Camellias, Evergreens, Gardenias, Rhododendrons, etc.

	Per lb.		Per lb.
25-299 lbs.	\$0.30	1000-1999 lbs.	\$0.25
300-999 lbs. ....	.26	2000 lbs. up .....	.24

25-0-25. Recommended for feeding where phosphate requirements are adequate, and potash requirements are high.

	Per lb.		Per lb.
25-299 lbs.	\$0.22	1000-1999 lbs.	\$0.17
300-999 lbs. ....	.18	2000 lbs. up .....	.16

12.5-5-25-25. For starter solution and also on crops where nitrogen requirements are low.

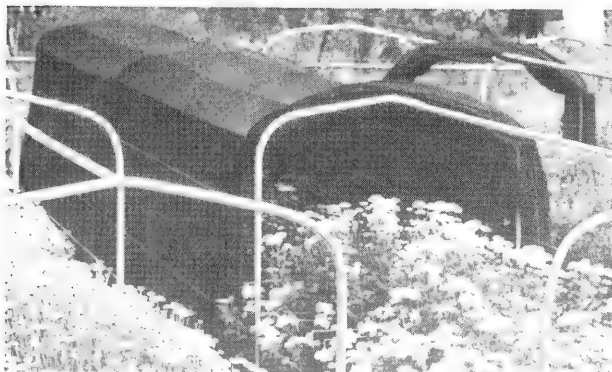
	Per lb.		Per lb.
25-299 lbs.	\$0.24	1000-1999 lbs.	\$0.19
300-999 lbs. ....	.20	2000 lbs. up .....	.18

Chelated Concentrate. To correct minor element deficiencies. 6.0% iron, 9.0% Manganese, 3.0% copper, 3.0% zinc, 2.0% boron, 0.5% molybdenum, 0.4% magnesium. 5 lbs. **75c** per lb.

	Per lb.		Per lb.
25-299 lbs.	\$0.56	1000-1999 lbs.	\$0.52
300-999 lbs. ....	.50	2000 lbs. up .....	.51

½c cheaper per lb. in 80 lb. bags. 300 lbs. or more prepaid freight within 300 miles of McKeesport, Pa.

SHADE CLOTH



BLACK CLOTH (For Day Length Control on Mums, etc.)

	Price per Sq. Yard	
American Black Sheen	\$0.65	\$0.59
Knights Black Sheen. Heavier and more opaque; best for off-season.....	.71½	.65½

On orders for less than minimum of 100 Sq. Yds. sewed or 300 Sq. Yds. unsewed, a charge of \$2.00 is added. Sold in 3 ft. widths or multiples of 3 ft. only. F.O.B. the Mills.

PLASTIC CLOTH

FUMICOVER

Black or clear 3 gauge Vinyl (Best for sterilizing covers)

3 gauge vinyl plastic is light weight, tough, and pliable. Temperature range 10° to 280°F. The most widely used sheeting in the agricultural industry because of its durability, weight, and cost. Net, F.O.B. Chicago, Ill.

Width	100 ft. Length	150 ft. Length
6½ ft.	\$20.80	\$31.20
8 ft.	25.60	38.40
10 ft.	32.00	48.00
12 ft.	38.40	57.60
13½ ft.	43.20	64.80
18 ft.	57.60	86.40



Chlorophyll Green 8 Gauge Vinyl (A heavier grade)

Chlorophyll green sheeting is made only of extra heavy duty 8 gauge vinyl plastic. Temperature range 10°F. to 280°F. Chlorophyll green light transmission is less than 1%. Life expectancy of 8 gauge vinyl is 3 times that of 3 gauge vinyl and 5 times that of 4 gauge polyethylene. Net, F.O.B. Chicago, Ill.

Width.	100 ft. Length	150 ft. Length	Width	100 ft. Length	150 ft. Length
6½ ft.	\$38.35	\$57.55	12 ft.	\$69.60	\$104.40
8 ft.	47.20	70.80	13½ ft.	79.60	119.40
10 ft.	59.45	89.20	18 ft.	106.65	160.00

Other sizes available on request.

SARAN

	Price per Sq. Yd.	
Natural 12 x 12, standard width 72 in. Sewed	\$1.48	.43
only .....	.48	.43

Pure VISQUEEN POLYETHYLENE in Rolls

For fumigation covers, plastic houses, greenhouse partitions for temperature control.

Width	Length	4 Gauge Clear Price per Roll	5 or more Rolls per Roll
6½ ft. x 100 ft.....		\$16.50	\$15.25
6½ ft. x 150 ft.....		22.50	21.00
10½ ft. x 100 ft.....		24.00	22.50
10½ ft. x 150 ft.....		33.50	32.00
13½ ft. x 100 ft.....		30.00	28.50
13½ ft. x 150 ft.....		42.00	40.00

Order for one delivery: \$225.00 value to \$499.00 less 5%; \$500.00 value and over, less 8%. F.O.B. Chicago, Ill.

POLYETHYLENE PLASTIC GREENHOUSES

(Shipped in cartons)

Plastic to cover a house 25 x 100 ft.
(2 rolls each 6½ x 100 ft. and 14½ x 125 ft.)
.002 or 2 gauge, Complete, **\$67.00.**
.004 or 4 gauge, Complete, **113.50.**

Plastic to cover a house 25 x 150 ft.
(2 rolls each 6½ x 150 ft. and 14½ x 175 ft.)
.002 or 2 gauge, Complete, **\$92.00.**
.004 or 4 gauge, Complete, **154.00.**

Ball Veneer Plant Bands and PlanTrays

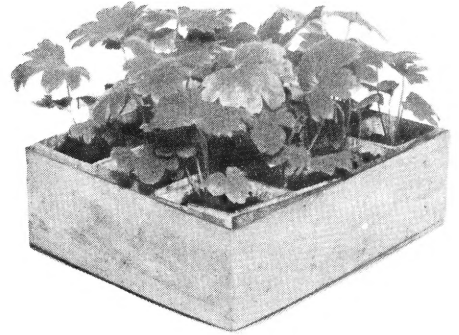
for Bedding Plants . . . Chrysanthemums . . . Perennials

Nursery Stock . . . Carnations . . . Vegetables

PLANT BAND PRICES

Per 1000 in quantities as shown below

Size	Shipping Units of	Weight Per 1000	0-9,000	10,000-24,000	25,000-49,000	50,000-Up
1 3/4 x 1 3/4 x 2.....	2,000	17 lbs.	\$5.85	\$5.50	\$5.15	\$4.90
1 3/4 x 1 3/4 x 2 1/2.....	2,000	18 lbs.	6.00	5.65	5.25	5.00
2x2x2.....	2,000	19 lbs.	6.00	5.65	5.25	5.00
2x2x2 1/2.....	2,000	20 lbs.	6.15	5.75	5.35	5.10
2x2x3.....	2,000	21 lbs.	6.70	6.30	5.90	5.60
2 1/2 x 2 1/2 x 2 1/2.....	2,000	22 lbs.	6.70	6.30	5.90	5.60
2 1/2 x 2 1/2 x 3.....	2,000	23 lbs.	7.15	6.70	6.25	5.95
3x3x3.....	1,000	33 lbs.	7.45	7.00	6.50	6.20
3x3x4.....	1,000	45 lbs.	7.80	7.30	6.85	6.50
4x4x3.....	1,000	45 lbs.	7.80	7.30	6.85	6.50
4x4x4.....	1,000	48 lbs.	8.85	8.30	7.75	7.40



Delphinium—Veneer Plant Bands and PlanTrays are especially nice for perennials.

PLANTRAY PRICES

All Prices Net, F.O.B. our warehouse in West Chicago, Ill.

Per 1000 in quantities as shown below

SAMPLES ON REQUEST

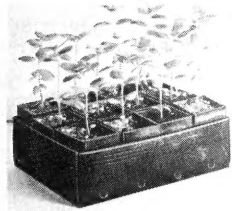
Size	Dimensions	Shipping Units of	Weight per 1000	0-875	1000-2375	2500-Up
No. 1-R	(5 3/4 x 7 5/8 x 2 1/2—Holds 12 1 3/4 x 2 1/2 Bands)	125	88 lbs.	\$46.30	\$44.20	\$42.30
No. 2-R	(6 3/8 x 8 3/8 x 2 1/2—Holds 12 2x2 1/2 Bands)	125	104 lbs.	49.40	47.20	45.20
No. 2-X	(6 1/2 x 8 1/2 x 2 1/2—Holds 12 2x2 1/2 Bands)	125	240 lbs.	62.90	59.20	55.50
No. 3-X	(8 1/8 x 10 5/8 x 2 1/2—Holds 12 2 1/2 x 2 1/2 Bands)	125	288 lbs.	69.70	65.60	61.50
No. 4-X	(9 3/8 x 12 1/2 x 2 1/2—Holds 12 3x3 Bands)	125	320 lbs.	76.50	72.00	67.50
No. 1-S	(9 1/4 x 9 1/4 x 2—Holds 25 1 3/4 x 2 Bands)	125	160 lbs.	55.20	53.00	47.80
No. 2-S	(10 3/8 x 10 3/8 x 2—Holds 25 2x2 Bands)	125	216 lbs.	60.80	56.90	52.70

BIRD VITA-BANDS

VITA-BAND 10, nutrient-treated, for growing periods of 8 to 10 weeks.

VITA-BAND D, nutrient-treated, disintegrates in the soil after planting band and all.

VITA-BAND H, nutrient-treated, for extra long growing periods.



PRICES—QUANTITIES—SHIPPING WEIGHTS

VITA-BAND	1 1/2 x 1 1/2 x 2 1/2	1 3/4 x 1 3/4 x 2 1/2	2x2 x 2 1/2	2x2x3	2 1/2 x 2 1/2 x 3	3x3x3	4x4x3	4x4x4
10	\$3.90 per 1000 (31 lbs.)	\$4.20 per 1000 (36 lbs.)	\$4.80 per 1000 (40 lbs.)	\$5.30 per 1000 (48 lbs.)	\$6.00 per 1000 (59 lbs.)	\$6.90 per 1000 (35 lbs.)	\$9.00 per 1000 (23 lbs.)	\$11.25 per 1000 (31 lbs.)
D	\$4.05 per 1000 (21 lbs.)	\$4.35 per 1000 (24 lbs.)	\$4.90 per 1000 (27 lbs.)	\$5.60 per 1000 (32 lbs.)	\$6.05 per 1000 (41 lbs.)	\$7.05 per 1000 (24 lbs.)	\$9.25 per 1000 (32 lbs.)	\$11.60 per 1000 (42 lbs.)
H	\$5.60 per 1000 (28 lbs.)	\$5.95 per 1000 (32 lbs.)	\$7.10 per 1000 (38 lbs.)	\$7.65 per 1000 (24 lbs.)	\$8.50 per 1000 (28 lbs.)	\$10.45 per 1000 (37 lbs.)	\$12.90 per 1000 (49 lbs.)	

SOLD IN CASE LOTS ONLY

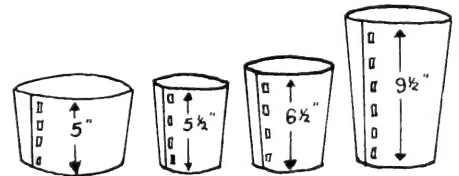
BIRD TOM THUMB FLATS

Combination 1000 Flats 12,000 Vita-Band 10 Per 1000 Sets		Sold in Units of 250 Sets only Per Thousand	Tom Thumb Flats	
Size #1 \$88.00	Size #2 \$97.00		Size #1 44.70	Size #2 49.60

Size No. 1 holds 12—1 3/4 x 2 1/2 bands.

Size No. 2 holds—12—2 x 2 1/2 bands.

BIRD PERENNIAL POTS



A better perennial pot for roses, vines, shrubs and other perennials. Made of a tough material, with hard, smooth coating inside and out. Solid stapled bottom with openings for drainage.

5" high pot designed for use as a mum pan.

5 1/2" high pot designed for small perennials and bulbs.

6 1/2" high pot designed for larger perennials, junior roses, and vines.

9 1/2" high pot designed for larger roses, large perennials such as peonies, large vines and shrubs.

NOTE: Order Pots by Height—Not Top Diam.

Height	Top dia.	Weight per 1000	Per case of 200	Per 1000
5 -in.	8-in.	325 lbs.	\$13.70	\$65.00
5 1/2 -in.	5-in.	165 lbs.	8.30	39.50
6 1/2 -in.	6-in.	220 lbs.	11.90	56.50
9 1/2 -in.	7-in.	355 lbs.	14.50	69.00

MINIMUM ORDER: Case of 200 of one size. Three cases at 1000 price.



USEFUL SUCCESSFUL

JIFFY-POTS



We now have a world of reports from growers, both large and small, proving the value of **Jiffy-Pots** in commercial growing.

This remarkable new pot is composed of 75% peat and 25% wood fiber, to which soluble fertilizers have been added. **Roots grow right through the walls**, permitting repotting into larger pots or benching without removing the **Jiffy-Pots**.

They are **inexpensive . . . light weight . . . long-lasting . . . provide excellent root aeration . . . need less watering . . . and save considerable labor.**

The most striking feature of Jiffy-Pots is the fast premium growth which they support . . . up to 50% faster and heavier than in other types of pots.

CARNATIONS. Many Carnation growers throughout the country are using **Jiffy-Pots** extensively for potting their cuttings. The Joseph H. Hill Co. at Richmond, Indiana, potted 150,000 cuttings in **Jiffy-Pots** last spring. Dick Mikesell, vice-president of the Hill Co., says: "We found we were expending 97 1/2 more man-hours for every 25,000 cuttings planted in clay pots than were necessary in using **Jiffy-Pots**. Once in the **Jiffy-Pots** the plants are never disturbed and consequently the comparative growth over the ones in clay pots is quite noticeable."

CHRYSANTHEMUMS. Cuttings can be potted in **Jiffy-Pots** and grown pot-to-pot for three or four weeks in much less space than required when benching. Then the **Jiffy-Potted** mums are benching, pot and all, with the usual spacing. In year-round mum programs some growers have gained additional production by this method . . . The danger of a mum program getting off schedule because an earlier crop has not been completely cut can be eliminated by starting the next crop's cuttings in **Jiffy-Pots** until the benches are ready . . . **garden varieties** of mums are being grown nicely in 3-inch **Jiffy-Pots** and are used either for bedding plant sales or for planting in spring combination boxes while in bloom.

GERANIUMS. Growth is so rapid that two weeks can be cut from the production time for midseason and late cuttings, even more from early fall propagations. Root the cuttings directly in **Jiffy-Pots** in the regular soil mixture. February and early March cuttings rooted in 2 1/4 in. **Jiffy-Pots** will make fine 4's for May sale . . . **Jiffy-Pots** also make ideal shipping containers. Wrapping every other **Jiffy-Potted** plant in newspaper holds them in place in the crate.

OTHER PLANTS. **Poinsettias:** Big advantage here is the time saved in panning since the 2 1/4 in. Jiffies are planted pot and all. Also, Holton & Hunkel of Milwaukee find that the fast growth in **Jiffy-Pots** lets them take cuttings later and extends the normal propagating season. . . . **Hydrangeas:** From rooted cuttings to 2 1/4 in. Jiffies to 5 in. finishing pots—this fast cycle is used by several Hydrangea growers . . . **Cyclamen:** 3 inch **Jiffy-Pots** grow fine Cyclamen transplanted from flats . . . **Gloxinias and Tuberous Begonias:** Use 3 in. Jiffies for starting the tubers. Tuberous Begonias can be sold in the **Jiffy-Pots** during bedding plant season or potted to 6's or 7's for flowering . . . **Plants for Combinations:** **Jiffy-Potted** plants are great time savers for making up mixed pots, cemetery tubs and the like—no knocking out.

2 1/4-Inch		3-Inch	
Quantity	Per 1000	Quantity	Per 1000
3,000 to 18,000 (3,000, \$21.75)	\$7.25	1,500 to 9,000 (1,500, \$19.88)	\$13.25
21,000 to 72,000	6.75	10,500 to 49,500	12.25
75,000 up	6.50	51,000 up	11.25
Sold in cases of 3000, minimum order 3000.		Sold in cases of 1500, minimum order 1500.	
35 lbs. per case.		35 lbs. per case.	

F.O.B. our warehouse in West Chicago, Ill., or Bayonne, N. J.

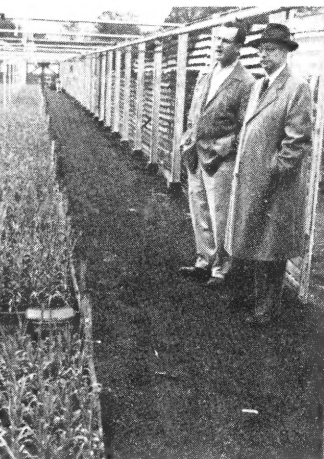
Growers are rooting Geraniums right in the **Jiffy-Pot**—find that the uniform moisture provided by Jiffies helps.

Roots of Chrysanthemums break right through the walls of **Jiffy-Pots**; no checking of growth.

GETTING UP STEAM! A new factory has been completed in Norway with modern, high-production machinery, and we expect to be able to ship all **Jiffy-Pot** orders without delay throughout the coming season. However, early orders are mutually beneficial.

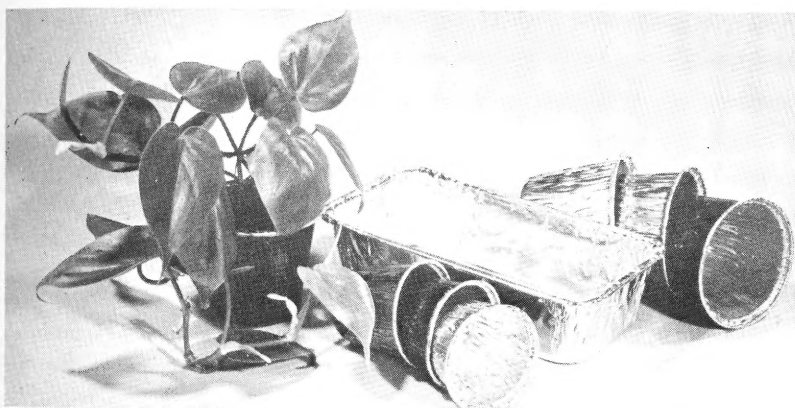


Here are Carnations in the Joseph H. Hill range, Richmond, Indiana. Above, on the left, K. H. Farlow, Supt. of Plant A, is comparing plants in clay pots with others in **Jiffy-Pots**—both planted on the same day. On the right, below, Dick Mikesell of Hill's and Monty Wright of Ball's are looking over Hill's outdoor planting in **Jiffy-Pots**. Soon they will be taken indoors for benching.



Below: Andy Podesta, Palo Alto, Calif., tested **Jiffy-Pots** on Poinsettias. Found better growth—practically no foliage yellowing and dropping and much labor saved in transplanting.





Reynolds ALUMIPOTS*

The All-Purpose Merchandising Plant Container

LIGHT WEIGHT

LONG-LASTING

UNBREAKABLE

SAVES LABOR

LESS WATERING

EASY TO STORE

CLEAN AND DISEASE FREE

BROAD-BASED POTS FOR STABILITY

NO NEED TO REPOT OR DRESS UP FOR SELLING

In any type of Plant Sales outlet, the Container helps sell the plant! "The Modern Way is the Packaged Way."

Modern consumer goods are packaged both to make them easier to handle and make them **more attractive and more readily salable.**

A potted plant is a consumer item. Do the pots you use help to sell your potted plants?

The modern aluminum pots and bedding plant packs—Alumipots and Alumipaks—are designed to **sell plants as well as grow them.**

PROVEN USES OF *ALUMIPOTS

Foliage plants, blooming plants such as African Violets, pot Mums, Begonias, Azaleas, Geraniums, Primulas, etc. Spring plants such as fancy Petunias, Lantanas, Coleus, Ageratum, annual Phlox, etc.

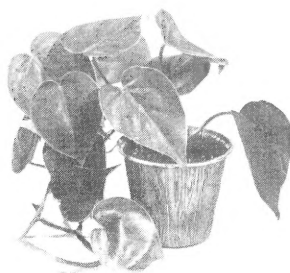
ALUMIPOT* PRICES

Available in plain silver or colors: Red, green and gold.

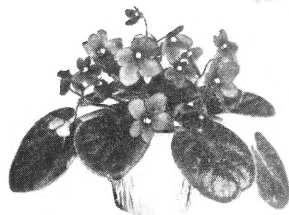
Quantity	2 1/4-inch		3-inch		4-inch	
	Plain Per 1000	Colored Per 1000	Plain Per 1000	Colored Per 1000	Plain Per 1000	Colored Per 1000
2,000 to 8,000.....	\$19.30	\$22.60	\$25.05	\$30.10	\$39.75	\$49.45
10,000 to 48,000.....	18.05	21.15	23.55	28.30	38.40	47.75
50,000 to 148,000.....	16.80	19.65	22.20	26.65	35.75	44.40
150,000 to 498,000.....	15.65	18.35	21.15	25.45	34.65	43.10

PACKING: 2 1/4 in. and 3 in., 2000 per case; 4 in., 1000 per case. **MINIMUM ORDER:** case of one color or plain. **SHIPPING WEIGHTS:** 2 1/4 in., 25 lbs. per case; 3 in., 37 1/2 lbs. per case; 4 in., 39 lbs. per case. Net F.O.B. West Chicago, Ill. Write for prices on larger quantities. **SEND FOR FREE SAMPLES.**

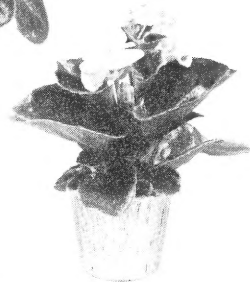
PHILODENDRON
CORDATUM



AFRICAN
VIOLET



FIBROUS ROOTED
BEGONIA



POTHOS
WILCOXI



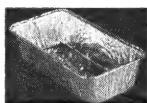
HARDY
MUM



ALUMIPAKS*

A sparkling, eye-catching container for growing and selling bedding plants. Strong and durable. Size, 4 1/4 in. x 8 1/4 in. x 2 in. Plain silver color.

*TRADEMARK, Reynolds Metals Co.



PRICES

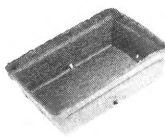
Quantity	Per 1000
1,000 to 9,000.....	\$40.35
10,000 to 24,000.....	38.00
25,000 to 49,000.....	35.90
50,000 to 99,000.....	34.05
100,000 up	32.50

1000 per case (34 lbs.). Net, F. O. B. West Chicago.

SEND FOR FREE SAMPLES

MARKET-PAKS

This popular pack for 12 bedding plants grown from seed is also used successfully for 6 Garden Mums or 6 Geraniums grown from cuttings. Model 42: size 5 1/2 x 7 1/2 x 2 3/8 in.



PRICES

Quantity	Per 1000
200 to 800 (200 for \$9.20)....	\$46.00
1,000 to 9,800.....	42.00
10,000 to 49,800.....	38.00
50,000 up	34.00

200 per case (20 lbs.). Prices net. F.O.B. West Chicago, or Bayonne, N. J.

SEND FOR FREE SAMPLES

Why Carnation Growers are

SWITCHING TO SPECIALIST PROPAGATION

Just as Mum growers went over to specialist produced cuttings years ago, Carnation growers across the country are now moving in the same direction. And for quite similar reasons.

We asked the three growers pictured on this page why they were making this change. Here's a summary of their response:

- **Disease:** "I can be sure of clean, healthy plants."
"Greater freedom from disease."
- **Time:** "Now I can devote my full time and attention to growing and marketing quality flowers and not have to worry about propagation."
- **Space:** "Would have to sacrifice space and flower production to propagate."
- **Bench on Time:** "You can get the cuttings exactly when you need them."
- **Quality:** "The extra quality and production plus savings in labor more than offsets the cost."
- **Cost:** "When you buy in quantity, the price is pretty close to what it would cost to produce them yourself."

Full details on Carnation Culture, Varieties, Prices, etc., on page 97.



Peter Mazzanti, well known Carnation specialist of South San Francisco, California, shown in a house of Sims. The combination of growing "know how" plus ample sunshine gives Pete up to eight breaks from one pinch. He has 68,000 ft. of glass, 30,000 ft. of plastic, grows mainly Sims, Apollo (and White), Venus, and Athena.



Here's John Mohlenhoff who, with the rest of the family operates Mohlenhoff's Greenhouses, Huntington, L. I., N. Y. John also is a retailer-grower, heavy in Carnations, Mums. When you see how closely space is used here, you realize why John makes the point of not wanting to sacrifice space to produce cuttings. Every foot must pay its way!



John C. Buhner (left) and Cecil F. Wilde, who operate the Eagle Grove Greenhouses, Eagle Grove, Iowa. It's a retail growing range like so many thousands of others across the country. They specialize in fine Carnations (above photo made in July just before discarding the crop), also do a large trade in Snaps and in spring plants.

Geo. J. Ball
INC.

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Phone West Chicago 299